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THE GOVERNMENT OF THAILAND

The Second National Economic and Social Development Plan

1967 - 1971

Thailand
The National Economic Development Board
Office of the Prime Minister
Bangkok, Thailand

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EXPLANATIONS

1. The Second Plan covers the period from October 1, 1966 to September 30, 1971 inclusive, which represent the beginning and the end of the Fiscal Years 1967 and 1971 respectively.

2. Gross national product, income and capital formation data are on a calendar year basis, that is, from January 1 - December 31. Agricultural production data, generally speaking, are on a crop year basis, but industrial, mineral and other production data are for calendar years.

3. Reference is made in the Plan to Changwads or Provinces, of which there are 71 in Thailand, and to Amphurs or Districts, of which there are approximately 500.

4. Values are expressed in baht, the par value of which is 20.80 baht to the U.S. $1.00.

5. Rai is a unit of measure equivalent to 1,600 square metres, or approximately 0.4 acres.

CHAPTER I

SUMMARY OF
THE SECOND NATIONAL ECONOMIC AND
SOCIAL DEVELOPMENT PLAN
(1967-1971)

Scope of the Second Five Year Plan

1. Planning for economic development in Thailand has improved steadily since the establishment of the National Economic Development Board in 1959 as the central planning agency. During this relatively short experience, development planning has contributed to the acceleration of the rate of economic growth and the diversification of the economy. The First Economic Development Plan, 1961-1966, was an operational programme of action for the central government's development expenditures. In the Second Phase of the First Plan, 1964-1966, the public sector coverage was broadened to incorporate development programmes for state enterprises and local governments; foreign financed expenditures were presented in detail and linked to specific projects and the balance of payments; and the development targets and policies were more clearly defined.

2. The scope of the Second Plan has been broadened to permit more realistic assessment of the potential of the economy as a whole and the measures necessary to realize development objectives. While the central part of the Plan continues to be the estimation of public sector resources and the sectoral programmes of development expenditures, special emphasis is placed upon social development to assure that the benefits of economic growth result in improved living standards for all groups in the society. Regional planning is introduced to accelerate development in the remote areas of the country and private sector policies and manpower considerations have become an integral part of the planning process. Representatives of the private sector, serving on working committees on manufacturing, trade and services, have participated in the process of establishing targets for private production and investment and recommending policy

measures affecting the private sector. Estimates have been made of the increase in the labour force and the additional employment likely to be generated by the Plan so that training and educational planning could be harmonized with the manpower requirements for the implementation of the Plan programmes.

3. The comprehensive scope of the Plan has permitted the construction of a target for the overall economic balance, which projects the movement and interrelationships of investment, consumption and foreign trade for the first time. Each target is the cumulation of the results of the detailed studies of the Plan. Thus, the balance sheet represents a reconciliation of the diverse forces expected to be operative during the period and a summary of the planned economic growth and structure under the Plan. Overall planning has evolved as a mechanism for obtaining clearer guidance as to the basic strategy of the Plan and as a check on its consistency, both during the period of the Plan and the longer term perspective.

Overall Development

Progress during the First National Economic Development Plan

4. Thailand's economy progressed satisfactorily during the period of the First Plan, 1961-1966, with Gross Domestic Product increasing at an annual rate of 7.2%, from56,000 million baht in 1960 to 87,000 million baht in 1966. The economic growth of the past six years has increased the productive capacity of the nation and improved its structural balance. Agricultural production has been diversified, with new commodity lines contributing to the substantial increases in export earnings. Although the balance of trade was unfavourable, the balance of payments produced surpluses reflected in the rising foreign exchange reserves, which equalled 820 million U.S. dollars at the end of September, 1966. Political stability, sound fiscal and monetary policies, stable exchange rates, combined with the marked rise in private and public investment have contributed to the healthy expansion of the economy.

5. On balance the First Plan was successfully implemented, although some projects inevitably lagged behind their planned schedules. The most

prevalent causes of delay were shortages of trained technical and administrative personnel and problems in the negotiation of foreign loans and the placement of equipment orders.

6. Fundamental problems persist in spite of the broad economic advances during the First Plan. Low levels of productivity are still widespread in agriculture and rapid population growth is compounding the difficulty of future development. Severe regional inequality constitutes an economic weakness which outside infiltrators have been exploiting for subversive purposes.

Development Objectives and Policies

7. The basic objective of the Plan is to attain the maximum increase in the standard of living which is consistent with the social and security requirements for improving the welfare of the people. Mobilization of the full human and natural resources of the country will be sought in order to expand productive capacity and draw all classes of society into the development process. The objective of social justice requires that the benefits of development be shared equitably, especially in isolated areas where the people cannot effectively help themselves. The maintenance of financial stability will be sought to enable long term growth to continue on a sound basis. The ultimate objective of national security depends upon the successful realization of the objectives of economic strength and social unity.

8. To realize the objectives of the Plan the successful policies already established will be continues. These include strengthening the efficiency and growth of the private sector, maintaining a stable monetary environment, and making more effective use of the substantial investments in national infrastructure under the First Plan. The policy of rural development will receive particular emphasis in a wide spectrum of programmes to lessen the severe inqualities between different regions of the country and to build up the agricultural base of the economy. The Plan also stresses the policy of promoting employment and developing manpower by improving the quality of the nation's human resources at all levels.

Targets and Economic Structure

9. The Plan target is to raise Gross Domestic Product in real terms by an average rate of 8.5% per year. Assuming an increase in population of 3.3% per year, average per capita income will increase at the rate of over 5% per year and rise to about 3,900 baht by 1971. Both public and private investment will increase substantially during the Plan period, stimulating the expansion of many types of economic activity, employment opportunities and higher income for the people. The rising volume of exports and foreign assistance will contribute to the accelerated growth of the country's economy. A significant structural change is expected in the economy during the Plan period, as the agricultural sector declines in significance relative to the non-agricultural sectors. By the end of 1971, the share of the agricultural sector in the Gross Domestic Product is expected to be only 26% as compared to approximately 33% in 1965. The economic sectors which will gain increasing prominence include manufacturing, construction, transportation and communication, banking and insurance. In spite of this healthy diversification, agriculture will continue to be the most important sector. The marked increase in the rate of development expenditures, combined with substantial inflows of foreign purchasing power, may have an adverse impact on the general price levels. Conversely, increasing demand will stimulate domestic production and induce foreign imports which will tend to stabilize the economy.

10. The perspective of the Second Plan necessarily extends beyond the limits of the five year period because development is a continuous process, requiring sustained and consistent long term efforts. The economic outlook is for continued rapid growth in output during the Third and Fourth Plans, as the private sector responds to the physical and social infrastructure and the investment climate built under this Plan. Gross Domestic Product is expected to rise by at least 7% per year, doubling present per capita income by 1981 if the current population growth rate continues. The growth rate of public investment will decline after the Second Plan period due to the completion of major portinns of the public infrastructure and private investment will accelerate as the capital market becomes more effective in mobilizing savings for the financing of modern industry.

The trends in the structural composition of the economy will continue and, by the end of 1981, the projected share of agriculture in the Gross Domestic Product will be approximately 20%. Manufacturing, construction, transportation, commerce and banking will experience rapid growth rates and will be responsible for larger shares of national output. The overall economic system of the country will have a more balanced productive capacity, as the improved transport and communications network fosters closer economic ties between different areas and promotes the development of regional centres outside of Bangkok. Measures to realize social objectives will become increasingly more important as the production of goods and services gains sufficient momentum. Foreign trade will continue to play a prominent role and, although exports are expected to increase, Thailand will continue to rely upon foreign capital to augment its domestic resources during this period of development. The future internal economic outlook depends upon the political developments affecting the security and cooperation of the region. Thailand will strive to realize economic cooperation, particularly between the Southeast Asian countries, in order to enjoy the maximum economic benefits for the area as a whole and each of the regional countries.

Monetary and Fiscal Policies

11. To achieve the Plan targets, total public development expenditures of 57,480 million baht and private investment spending of about 92,800 million baht will be required. The largest portion of the public development expenditures will be for the development of infrastructure projects in the sectors of agriculture, power, and transport and communications, which will amount to 33,400 million baht, or approximately 58% of the total. About 11,900 million baht, or about 21% of the total, will be spent for community facilities, social welfare and rural development and about 9,180 million baht, or 16% for the sector of education and health. Approximately 73% of the development expenditures, or 42,200 million baht, will be financed by domestic resources, and about 27% will be financed by foreign resources.

12. Private investment is larger and more significant than public investment, for a free enterprise economy such as Thailand depends upon private enterprise to serve as the engine of economic growth. During the Second Plan, private investment is expected to increase 8.7% per year, rising to a cumulated total of 92,800 million baht or 17% of Gross Domestic Product by 1971. Eighty nine percent of private investment is expected to come from domestic sources - individual and business savings (79%), private commercial banks (8%), and other financial institutions (2%).

13. During the First Plan period Thailand's balance of payments was in a favourable position. A sizeable balance of trade deficit due to the strong upsurge of capital goods imports was largely offset by Thailand's net surplus on invisible payments. Moreover, net capital inflow turned the trade deficit into a balance of payments surplus. During the Second Plan period export earnings are projected to increase at an annual rate of 7.2% and import spending at 9.3%. A larger trade deficit is expected to be offset by net earnings on invisible items, such as tourist and U.S. military expenditures in Thailand, and transfer payments. Continuing foreign capital inflows will contribute to a rise in international reserves which is expected to be lower than during the First Plan period.

14. The Second Plan budget expenditures, both current and development are approximately double the level of the First Plan and in excess of the likely availability of domestic public resources. Financing the deficit may therefore accentuate the inflationary pressure created by the accumulation of foreign exchange, thus requiring more efficient tax administration or new taxes if the objectives of the Plan are to be realized. Because of the uncertain international situation in Southeast Asia, estimates of revenues, expenditures and balance of payments can be only approximate, and fiscal and monetary policies must be reviewed annually to assess evolving economic trends.

Manpower Development

15. The development of manpower represents one of the most important policy objectives of the Plan. This objective has a threefold approach: to

generate employment opportunities at least equivalent to the increase in the labour force, to promote rural employment with a view to relieving underemployment, and to improve the quality of manpower in order to meet requirements of the present and future programmes of economic and social development.

16. It is estimated that the Plan will provide new jobs for approximately 2.2 million persons, which is almost equivalent to the increase in the labour force expected during the Plan period. Under-employment in the rural areas will be alleviated by the measures undertaken in the Rural Manpower Development Plan. The quality of the country's manpower will be upgraded through education and different types of training programmes.

Regional and Local Development

17. An important policy objective of the Plan is to reduce the differences in the standard of living of different areas of the country. Special programmes will be implemented by five Regional Development Committees so the requirements and potential of each region will be considered. The Accelerated Rural Development Programme will focus attention on the development of remote areas in the Northeast and the North. There will also be programmes operated by the local administration with financial assistance from the central government.

State Enterprises

18. During the Second Plan period 9,800 million baht, or 17% of the Government's entire development expenditures, will be implemented by the 108 state enterprises, which are firms in which the Government holds over half of the equity captital. The Government objective is to limit state enterprises to those which are public utilities, which contribute to the Government revenue, or which are essential to the security of the nation. Investment projects of present or new state enterprises will not be approved unless they are economically feasible and will not conflict with the policy of promoting private enterprise. Unprofitable state enterprises will be examined to determine the possibility of improving their efficiency or transferring them to the private sector. The majority of the state

enterprise development projects are for public infrastructure such as the generation and distribution of electric power and transport and communication facilities.

Sectoral Development

Agriculture and Cooperatives

19. The agricultural sector is the foundation upon which the country's economic development must be based. About 80% of the country's population is engaged in agricultural employment; agricultural exports earn the foreign exchange required for capital imports to modernize the economy; and the agricultural sector is the primary market for industrial production. The major emphasis upon this sector is reflected in the rise of development expenditures on agriculture from 14% of the total First Development Plan expenditures to 20% of this Plan. The primary objectives of the agricultural sector are to increase productivity, to diversify and balance agricultural production, and to develop the remote rural areas where neglect and poverty create vulnerability to subversion.

20. The target annual growth rate for the agricultural sector is 4.3%, which is slightly lower than the rate under the First Plan but well in excess of the population growth rate. The growing flow of benefits from agricultural development projects is expected to stimulate crop production and reduce the instability of income caused by inadequate water control. The primary component of the agricultural sector is crop production, especially paddy which is expected to reach 13.7 million tons by 1971. Other crops which will contribute significantly to the sector's projected growth include maize, sorghum, oil bearing beans, industrial cotton, and vegetables. The annual growth rates of fishery products and livestock are expected to be 4.7% and 5.0% respectively, while forestry production will be low because of conservation efforts to ensure adequate future supplies.

21. The major agricultural development programme will continue to be for irrigation, much of which will consist of projects initiated during the

First Plan. However, major new projects will be implemented on the following basins: Nan, Pran, Nam Oon, Upper Chee, Nam Young, and Upper Mun. The area under irrigation is expected to rise to 15 million rai by 1971, an increase of 3.3. million rai over 1966. Regional Agricultural Research Centres will be established and specialized experimental stations will be established to promote the cultivation of such important crops as rice and rubber, Promotion efforts will continue for maize, sorghum, banana and new crops such as cotton and oil palm. Fishery projects include the promotion of deepsea fishing by surveying fish resources and training fishermen in advanced techniques. The main features of the livestock development programme are the acceleration of breeding improvements and disease control. The forest control programmes will emphasize forest protection and afforestation. The land development programmes include land surveys and classification, and the provision of technical assistance to various governmental agencies concerned with land resettlements areas.

22. Agricultural development depends upon the active initiative of the farmers and their ability to make production decisions in an environment which is equitable and understandable. One important programme, therefore, is the promotion of farmers' organizations to assist the farmers in participating in the development process. Legislation will be enacted to permit the conversion of farmers' groups into corporate entities and specialized cooperatives will be encouraged to merge into larger multi-purpose organizations for this purpose. Research studies of the land tenure system and the structure of markets and prices will facilitate sound policy formulation. The Government, moreover, will substantially expand its programme of agricultural credit, through the new Bank for Agriculture and Cooperatives, so that credit will be available for productive investment.

23. The total development plan expenditures for agriculture will be 11,300 million baht, consisting of 8,400 million baht of budget appropriations, including 800 million baht for the Aid-to-Farmers Programmes; 1,940 million baht of foreign loans to develop the irrigation system; foreign grants of 550 million baht; and 400 million baht for the rubber replanting subsidy programme.

Industry and Mining

24. The primary objective is to accelerate the rate of private industrial investment by the creation of a favorable economic infrastructure and business climate. The Second Plan will continue and expand programmes of industrial finance, management development and industrial research. New projects will be implemented to establish an industrial estate and to strengthen the small scale industries which must serve as the basis for future growth. Special measures will be designed to prevent tax policy from detering private industrial investment and to prevent state enterprises from competing with private firms.

25. The rate of growth of industrial production is expected to increase to 11% per year during the Second Plan. On the basis of consultations with representatives of the private sector, rapid growth targets have been established for the following industries-paper, chemical fertilizers, steel, automotive assembly, cement, textile and plywood manufacturing.

26. The Plan identifies the specific industries which must be expanded to reach these targets. The primary vehicle for promoting foreign and domestic private investment will continue to be the Board of Investment which has been reorganized and strengthened. The Government will particularly encourage medium and small scale industries using domestic raw materials, food processing firms and construction materials manufacturers. The policy on industrial state enterprises will be to prevent them from competing with private enterprise, to restrict the establishment of new state enterprises, to invest only to improve the efficiency of present facilities and to emphasize better organization and management techniques.

27. Mineral development will similarly depend on the private sector's vitality in responding to market opportunities. Tin production is expected to continue to rise, but no substantial increases are anticipated for the other minerals. The Second Plan stresses surveys of mineral ores in order to increase the known ore reserves and to create profitable potential opportunities for future mining development.

28. Most of the Industry Sector's financial programme in the past has represented the investment expenditures of the industrial state enterprises, which will decline under the Second Plan. Consequently, the total development budget for this sector is only 917 million baht, less than 2% of total planned development expenditures, although the substantial expenditures in other economic sectors will also enhance the profitability of private manufacturing enterprise.

Transport and Communications

29. Transport and Communications will continue as the largest sector of the Development Plan because of its success in stimulating private economic growth and its favourable impact on the social cohesiveness and security of the people. The general policy will be to continue and improve the varied projects underway, emphasizing the maintenance of facilities and integration of projects into economical and efficient systems of transport and communication.

30. The major programme in this sector is the Highway department's Plan to construct an additional 1,600 kilometres of highways, thus increasing the national highway system to 11,300 kilometres by 1971. In addition, provincial and feeder roads will be built in remote areas to link with the trunk routes of the national system. Other transport and communications projects provide for improvements in the existing systems of railways, telephones, television and postal services. Plans are to survey and construct a second deep sea port facility, to improve the southern coastal ports, and to select a proper site for a second commercial airport. A comprehensive survey will be undertaken to recommend measures and institutional arrangements to integrate and coordinate the national transportation system. The telecommunication system for both the North and the South will be completed and telephone services, particularly in Bangkok, will be expanded and improved. The installation of a Satellite Telecommunication System will facilitate international communication services.

31. The development expenditures in this sector amount to 17,100 million baht, consisting of 9,200 million baht from the national budget, 5,400 million baht from foreign loans and grants, and 2,500 million baht of reinvested earnings of the state enterprises.

Energy

32. Power generating capacity will increase 33% annually during the Plan period in order to satisfy the accelerating growth in demand. The Plan also focuses on increasing the effective utilization of present facilities by expansion of the distribution systems, coordination of producing and distributing units, and reduction of power rates to stimulate use for productive purposes.

33. Guided by the policy of utilizing the most economical production technology for the specific geographic area, the Power Programme includes hydro, thermal and diesel projects. Hydro capacity will be increased by the installation of additional units at Yanhee and the new Sirikit Dam, and surveys will determine the feasibility of hydroelectric sites in other regions of the country. Steam capacity will increase when the Lignite Authority adds a third unit at its Krabi plant and as the Bangkok Power Plant is expanded. Diesel generating facilities made surplus by the extension of the Yanhee line will continue to be relocated in remote areas. Although the per capita power consumption is still low, the initial bottlenecks have been overcome and adequate power will be available for industrial and commercial activities in spite of the relative decline in Plan expenditures allocated to this sector.

34. The Plan expenditures for power development will be 4,900 million baht, consisting of 1,400 million baht from the national budget; 2,200 million baht of foreign loans; 330 million baht of foreign grants, primarily for the development of the Mekong River; and 1,00 million baht from the reinvested earnings of the state enterprises. However, continuing review of power demand indicates that there may be a need to increase the power expenditure programme during the Plan period.

Commerce and Services

35. The commercial policy of the Plan is to promote private initiative within a framework of free enterprise and fair competition, for an efficient commercial system is primary force in economic development. Projects will be implemented to analyze and forecast the markets of Thailand's major domestic products, to improve commercial intelligence, and to stabilize the prices of basic agricultural commodities such as rice. The free import of capital goods and raw materials will be permitted to encourage investment and to alleviate possible inflationary pressures on domestic resources. Programmes also will be adopted to promote foreign trade expansion by quality controls and the identification of market opportunities. The commodity export targets include a 30% increase in rice exports to 2.5 million tons by 1971.

36. The Plan recognizes the growing importance of the service industries, especially transport, construction and tourism. The tourist promotion industry has rapidly gained prominence as an important source of revenue and foreign exchange for the country.

Community Facilities and Social Welfare

37. Social problems are an inevitable consequence of the rapid economic development Thailand is experiencing. The objective of this sector is to anticipate and alleviate these problems by improving the social system so that the populace can live in peace with opportunities for full realization of their individual potentialities. The growth of urbanization accentuates the need for adequate community facilities, particularly in the Bangkok-Thonburi area where the crowding together of about 7% of the population of the country creates special social problems. Development activities will continue for the Bangkok waterworks, road system, and city planning; slum clearance and public housing will be accelerated; and the private sector will be encouraged to invest in middle income housing. The implementation of a major Drainage and Sewerage Project for Bangkok will be started during the Plan period. The

new Department of Labour will design measures for the welfare of the expanding labour force. Rural projects include rural water supply, provision of land through self-help settlements, community development and the promotion of agricultural occupations.

38. The planned development expenditures for this sector amount to 10,200 million baht, consisting of 5,200 million from the national budget, 2,300 million baht of local government development expenditures, 1,600 million baht from foreign loans, and 1,100 million baht from foreign grants.

Public Health

39. The public health programmes are classified into curative measures which attempt to provide adequate medical service for the ill, and preventive measures, whose success is measured by declining incidence of diseases. Shortages of doctors and nurses have seriously handicapped progress in both the preventive and the curative fields. By the end of the Plan, the ratio of doctors to population is expected to improve from 1:8,000 to 1:7,000, but the supply will still not be adequate for national requirements. Medical training at all levels will be accelerated to overcome the manpower shortages which impede the expansion of public health services. A number of larger, provincial hospitals will be upgraded to serve as regional hospitals.

40. Preventive measures emphasize expanding the coverage of current programmes for the control of communicable diseases and the improvement of environmental sanitation. The large malaria programme has shifted from the control to the eradication phase. Important research on family planning and birth control may lead to future population policies. The district Health Centres, which are the traditional means of instructing the people concerning health measures, will be assisted by Mobile Medical Units traveling in remote areas.

41. Development Plan expenditures for public health will amount to 2,570 million baht, of which 1,800 million will come from budget appropriations and the rest from foreign grants.

Education

42. Since the educational system bears the major burden of creating the human resources to generate social and economic progress in Thailand, its expenditures in this sector will increase significantly during the Second Plan. While the system has been steadily progressing and enrollment equalled approximately one sixth of the population in 1965, there were still many who were deprived of educational opportunity and the number of students above primary educational levels was inadequate for national needs. The quality of education in general has not been satisfactory and the system has produced graduates who have not met the country's manpower requirements, thus causing employment problems and wastages in the utilization of human resources.

43. It is the Plan policy to develop an education system which is consistent with the economic and social requirements of the country. The physical target for 1971 is to increase enrollment from the 1965 level of 5.3 million students to 6.4 million by 1971. Large additional investment will be necessary to realize the primary level objective of improving and expanding compulsory education and raising the national standard from the fourth to the seventh grade. At the secondary level, the vocational school system will be improved and comprehensive high schools will be established in order to provide attractive alternatives to the purely academic stream. The objective will be to expand the opportunities at the pre-university level for immediate, constructive participation in the society.

44. At the university level, the educational program will focus on upgrading the quality of present institutions, improving technical curricula, and decentralizing the opportunities for higher education. The universities require more rigorous and systematic curricula, as

well as better teaching materials, if they are to reduce the present dependence on foreign education and provide the leadership of the future.

45. The Plan outlay for education development will be 6,600 million baht, of which 5,500 million will come from budget appropriations, 570 million from foreign loans and 530 million from foreign grants.

CHAPTER II

PROGRESS DURING THE FIRST NATIONAL ECONOMIC DEVELOPMENT PLAN

Economic Progress

1. During the period of the Six-Year National Economic Development Plan (1961-1966), the Thai economy established a satisfactory record of economic growth; the increases in production as reflected in national income surpassed the targets envisaged in the Plan. The achievements under the First Plan are shown in the Selected Economic Indicators of Table 1. The Gross National Product (GNP) increased from 55,717 million baht in 1960 to 80,278 million baht in 1965 and it is expected to reach 86,930 million baht in 1966. Gross Domestic Product (GDP) in real terms rose at an annual average rate of 6.5 % during the First Phase of the Plan (1961-1964) and increased to approximately 8 % during the Second Phase (1964-1966), making the average annual growth about 7 % for the Plan period. Per capita output in real terms increased at an annual average rate of about 4 %. Capital formation grew at an accelerating rate, which over the period averaged slightly under 20 % of the Gross Domestic Product. Price levels have reflected only slight increases during this period of economic expansion. International trade, a vital element in the national economy, grew steadily during the Plan period. Although there were annual deficits in the balance of trade, the overall balance of payments was favourable, and Thailand was able to maintain a high level of foreign exchange reserves. The success in maintaining overall financial stability during the Plan period has made the Baht a stable and reliable currency in international trade.

2. After allowing for the population growth rate of 3.3 % per annum, per capita GNP in real terms has been rising at about 4 % per annum, from 2,056 baht in 1960 to approximately 2,620 baht in 1966. Although development efforts have been successful in generating more income, inequality of income still prevails among the people in different regions of the country. The income of the people in the Bangkok-Thon Buri area is on the average very much higher than that of people in the rural areas, especially those who are engaged primarily in agriculture. Although the labour force has been increasing at the approximate

Table 1

Selected Economic Indicators: First Plan Period

	Unit	1960	1963	1964	1965	1966 (Estimated)
Population	Million	27.1	30.0	31.0	32.0	33.2
Gross National Product (current prices)	Million baht	55,717	68,921	74,738	80,278	86,930
Per Capita GNP (current prices)	Baht	2,056	2,301	2,413	2,508	2,628
Gross Fixed Capital Formation (current prices)	Million baht	8,150	14,961	16,488	17,419	19,300
Production						
Agriculture	Thousand tons					
Paddy	"	7,789	10,168	9,640	9,587	11,900 1/
Maize	"	544	858	935	1,000	1,200
Rubber	"	171	198	211	215	220
Kenaf & Jute	"	179	219	310	384	500
Tapioca	"	1,222	2,111	1,557	2,340	2,400
Teak	Thousand cubic metres	154	144	143	154	140
Yang Wood	"	321	462	537	540	540
Fisheries	Thousand tons					
Fresh Water Fish	"	73,	95	83	86	90
Marine Fish	"	146	323	494	551	580

	Unit	1960	1963	1964	1965	1966 (Estimated)
Industry						
Cement	Thousand tons	544	997	1,059	1,247	1,400
Gunny bags	Thousand bags	6,878	23,129	33,511	39,892	45,000
Paper	Tons	2,554	7,890	13,577	22,300	26,300
Sugar	Thousand tons	140	125	168	320	270
Cigarettes	Million	8,862	10,171	10,195	10,500	10,800
Cotton Textiles	Million yards	83	140	171	251	325
Mining	Tons					
Tin	"	16,757	21,617	21,635	26,419	27,100
Lignite	"	107,783	137,073	103,633	124,967	153,100
Iron ore	"	11,475	15,743	190,955	750,477	710,000
Gypsum	"	13,000	23,889	41,900	11,240	34,000
Gross Power Generated	Million K.W.H.	563	887	1,088	1,340	1,700
Price Index						
Wholesale Price	Index (1958=100)	92	99	93	96	96
Consumer Price	Index (1962=100)	96.4	100.9	102.9	103.8	107.7
Foreign Trade	Million baht					
Exports		8,614	9,676	12,339	13,049	13,700

	Unit	1960	1963	1964	1965	1966 (Estimated)
Imports		9,622	12,803	14,253	15,219	17,500
Balance of Payments		949	949	1,437	1,705	4,170
Finance	Million baht					
Revenues (Fiscal year)		6,683	8,803	9,778	12,457	12,711
Expenditures (Fiscal year)		6,721	10,502	11,030	12,416	14,440
Internal debt (end of Dec.)		6,380	7,619	8,784	100,007	12,265 2/
Foreign debt (end of Dec.)		2,153	3,923	4,490	4,906	5,256 3/
Money and Banking	Million baht					
Money Supply (end of Dec.)		10,088	11,881	12,919	14,332	15,428 2/
Commercial Bank Deposits		5,450	9,948	11,798	14,141	17,211 2/
Foreign Reserves		7,130	11,008	12,445	13,989	17,066 2/

Note: 1/ Statistics undergoing adjstment

2/ Actural figure at September 30, 1966

3/ Actual figure at August 31, 1966

rate of 2.9 % per annum, unemployment does not appear to be a serious problem. The tentative estimates of the National Economic Development Board indicate that the unemployment rate in the municipal areas in 1965 was about 5.5 % and there was negligible unemployment in the rural areas except for the usual seasonal unemployment among the farmers.

3. The rapid growth of gross fixed capital formation was conspicuous during the Plan period. Capital formation increased from approximately 8,150 million baht in 1960 to 17,419 million baht in 1965, and in 1966 constituted about 23 % of the Gross Domestic Product. The rate of growth of capital formation in the private sector greatly increased during the Plan period. Since 1963 the growth of capital formation has kept pace with that of the Gross National Product, increasing at the rate of more than 7 % per annum. The high rate of capital formation clearly reflects the increase of productive capacity in both public and private sectors.

Price Levels

4. During the period 1961-1965, the wholesale price index fluctuated in a narrow range from 96 and 100, with 1958 as the base year. The wholesale price index rose from 92 to 100 in 1961, the first year of the Plan, but by 1966 it had fallen to 96. During the same period the consumer price index rose from 97.6 to 103.8, using 1962 as the base year. It is estimated that this index will reach 107.7 in the year 1965. Although there were seasonal fluctuations in both indices, the very small annual increases indicate the financial stability which characterised the Plan period.

International Trade

5. Thailand's international trade has grown successfully during the past six years. Export earnings rose from 8,614 million baht in the year 1960 to 13,049 million baht in 1965, while imports rose from 9,622 million baht to 15,219 million baht. The total value of forign trade in 1966 is estimated to exceed 30,000 million baht. During the Plan period, 1961-1966, the average annual export and import growth rates were 10 % and 11.8 % respectively. During the First

Plan period the import of capital goods increased from 24.8 % to 31.7 % of total imports. Imports of food and beverages accounted for 9.3 % of the total value of imports in 1960, compared with only 7.4 % in 1965.

6. Foodstuffs continued to be the major export items, accounting for 57.9 % of the total export earnings in 1965, as compared with 45.4 % in 1960. Traditional major export commodities have consisted of rice, rubber, tin and teak. A recent decline in the export earnings from teak has been more than offset by the increased exports of upland crops such as maize, kenaf, tapioca and sorghum. Because of this diversification in Thailand's export commodities, the relative importance of rice as a major export declined to about 33.5 % of total export earnings in 1965.

7. Rapid economic growth has increased the demand for imports, especially of capital goods, and since 1960 Thailand has had balance of trade deficit on current account. In 1963 a record 3,127 million baht deficit was registered. However, the substantial net inflows of private and public investment have exceeded the current deficits and the overall balance of payments has been consistently favourable. By the end of September 1966, the country's foreign exchange reserves had risen to 17,200 million baht, and the international value of the baht remained almost unchanged over the six year period.

Fiscal, Monetary and Banking Conditions

8. The Government successfully followed a policy of financial stability during the Plan period. Money circulation gradually increased in accordance with the widening monetization and development of the economy. Tax revenues were buoyed up by the rapid growth of economy, particularly during the Second Phase of the First Plan. Government revenue for 1966 was 98 % higher than for year 1962. Overall total public expenditures increased substantially to satisfy the growing demand for government services and development activities.

9. During the First Plan private savings increased moderately and new measures were instituted to raise public savings and avoid inflation. These included easing import restrictions on certain commodities and improving tariff regulations, as well as methods of tax collection to prevent consumer demand from

becoming excessive. Furthermore, the interest rate for savings deposited at the Government Savings Bank was increased, in order to promote private savings and mobilize domestic investment. Total commercial bank-deposits, including demand and time deposits, continued to increase. Expanding credit from the commercial banks assisted the private sector in financing the substantial investment which stimulated the growth of the economy during the First Plan.

Sectoral Development

Agriculture

10. While agriculture is still the dominant sector of the economy, its relative importance as a share of Gross Domestic Product has declined as the economy has become more balanced and diversified. During the Plan period, the growth rate of agricultural production averaged about 5 %, as compared with 4 % prior to the Plan, with remarkable increases being registered in new upland crops for the export market.

11. The most important single crop, paddy, experienced an expansion in the area under cultivation and an increase in total output. Paddy production increased from 9.2 million tons in 1962 - 1963 to 10.2 million tons in 1963 - 1964, an average growth rate of 11 %. This impressive increase in paddy production has been achieved by the introduction of higher yielding varieties of rice, increased application of fertilizer, the control of certain crop diseases and improved water control as well as the expanded area of cultivation. The 1965 production of maize of over 1 million tons was double 1960 production and a record high is expected in 1966 due to the strong demand for maize in foreign markets. The production of tapioca and other upland crops also increased. Output of sorghum, a newly introduced crop, expanded rapidly, although improvement is needed in seed selection. Cotton production has been steadily increasing since 1962 as the result of energetic promotion of improved varieties by the Government. Castor oil production increased considerably reaching a total of 45,000 tons in 1965 and the demand in the world market affords good prospects for this crop.

12. The Government investments in irrigation, land development, fishery and livestock development and other infrastructure facilities contributed substantially to expanding agricultural development. The largest expenditure was for irrigation and the total irrigated area increased by 1.9 million rai, from 9.8 million rai in 1961 to 11.7 million rai in 1966, which is equal to about one fourth of the total cultivated land; see Table 2. Diversion dams were completed at Kang Kracharn, Mae Tang, Mae Yom and multi-purpose dams were completed at Bhumibol, Ubolratani and Nam Pung. Eight additional projects were under construction, at Nan (Phasom), Kiw Lom, Lampao, Lam Praplerng Lam Takong, Nong Wai, Mae Klong Yai and Ta Chiad. In addition to the large irrigation projects, people's irrigation projects, which include ditches and dikes and water storage projects, made considerable progress in the Central Plain and the Northeast. Although progress generally was satisfactory, delays in the implementation of some projects occurred because of the length of loan negotiation, problems of land appropriation and difficulties in the removal of people from the areas of the dams' reservoirs, as well as delays in the construction of water courses and field canals.

Table 2

Increase of Irrigated Area During the First Plan

	Irrigated area 1961	Irrigated area 1966
State Irrigation	8,615,000 rai	9,666,100 rai
People's Irrigation	971,500 rai	1,174,900 rai
Water Storage	210,000 rai	360,000 rai
Water Conservation	-	500,000 rai
Total	9,796,500 rai	11,701,000 rai

13. In the field of agricultural research, considerable progress was achieved in the experimental work conducted at the 135 research and experiment stations under the Department of Rice, Department of Agriculture, Department of Fisheries and the Department of Livestock; see Table 3. Because the existing stations are generally too small and inadequately staffed with technical personnel, regional agricultural centres were initiated. During the Plan period, Regional

Agricultural Stations at Khon Kaen and Chai Nat and a Rubber Research Institute in Songkhla were established.

Table 3

Number of Research and Experiment Stations at the End of 1966

	Number
Regional Agricultural Stations	2
Agricultural Stations	20
Seed Multiplication Stations	9
Sericulture Stations	5
Rubber Stations	10
Rice Experiment Stations	18
Crop Disease Eradication Centres	11
Rice Disease Eradication Centres	12
Rubber Experimental Plantations	4
Rubber Growing Plots	11
Marine Fishery Stations	3
Animal Nutrition and Forage Crops Stations	5
Livestock Breeding Stations	10
Fresh Water Fishery Stations	13
Brackish Water Fishery Stations	2
Total	135

14. Agricultural extension efforts in the past have met with limited success due to the small number of field workers. In order to encourage the farmers to help themselves in utilizing the improved techniques and services derived from the agricultural research effort, approximately 1,000 farmers associations, with membership of about 40,000 families, were established in 60 provinces and agricultural promotion offices were set up in various regions.

15. The growth of rubber production was unsatisfactory because of difficulties in the replanting of old trees with high yielding varieties and the declining price of natural rubber in the world market. The Rubber Replanting Scheme which had been underway since 1961 lagged behind requirements and only

about 158,000 rai had been replanted by mid 1966. The programme was impeded by the small average size of holding and insufficiency of the subsidy, although the latter was remedied by the increase in the subsidy to 1,850 baht per rai in 1966. The Rubber Research Institute worked on the improvement of rubber varieties, production techniques, as well as rubber disease control.

16. Development of fisheries, livestock and forestry progressed during the Plan period. Marine fishing output expanded rapidly and West Germany agreed to assist the establishment of a Marine Biological Research Centre in Bangkok. The livestock development programme included the promotion of animal husbandry and disease control, as well as work at the Dairy Promotion Centre at Muak Lek. Timber production increased only slightly as a new method for control conservation was initiated by the establishment of 30 patrol units. About 7,000 rai of teak and 15,000 rai of other timbers were planted under the reafforestation programme which lagged behind schedule due to shortages of capital and manpower. The development of national parks and areas for the preservation of wild life gained momentum and will be further expanded.

17. Work on land development was also accelerated by the newly created Land Development Department. Satisfactory progress was achieved in the land classification programme which had covered an area of 345,418 square kilometres at the end of 1966, of which approximately 263,301 square kilometres were identified as forest reserve. During the Plan period soil survey analysis and soil conservation activities were also undertaken in the Northeast.

18. Many types of cooperative societies, particularly land improvement and land settlement cooperatives, were successfuly introduced. By the end of 1965, there were 487 land cooperative societies with a membership of 28,300 families and total holdings of 738,900 rai. Nevertheless, problems remained due to the shortage of competent personnel and the inadequacy of credit funds for the cooperative members. Credit and marketing cooperatives increased to approximately 121 societies with a total membership of 64,400 families, although many are still operating at a loss. On the whole, the cooperative movement was considerably strengthened during the Plan period, particularly by the amalgamation of many small cooperatives into larger and more effective cooperative unions.

19. To provide national agricultural credit, the Bank for Agriculture and Co-operatives was created and five branches outside of Bangkok were scheduled to open during 1966.

Industry and Mining

20. The manufacturing sector of the economy expanded rapidly at an annual average of 10.5 % during the Plan period and by 1966 contributed over 12 % to the Gross National Product, as compared to 10.5 % in 1960. The industries created or significantly expanded during the Six-year period included oil-refining, manufacture of tires, glass sheets, paper, pharmaceutical products, construction materials, tin smelting, and cotton spinning and weaving. The traditional industries, producting products like gunny bags, milled rice and cement also expanded. The number of manufacturing establishments increased from 16,005 in 1960 to 38,393 in 1965. Cement production in 1965 reached a level double the 1960 production and it will be raised 25 % further when the new plant at Nakhon Si Thammarat comes into operation. Production of gunny bags significantly increased and 1966 output is expected to be more than adequate to satisfy local demand. Since the opening of the first oil refinery in August 1963, the production of petroleum products has been growing at a rapid rate. Refined petroleum output increased four-fold from 1964 to 1965, reaching a total of 1,802 million litres. Production of sugar was 320,000 tons in 1965, about twice the 1960 production, although the surplus could not be exported without a subsidy to compensate for the low yields and high costs in the industry. Production of paper rose considerably, and a large increase will occur when the kraft paper factory at Kanchanaburi begins operations.

21. During the Plan period progress was realized in the promotion of domestic and foreign investment in medium and large scale industries under the Industrial Promotion Act of 1960; see Table 4. The Board of Investment, which administers the Act, was strengthened and established as a permenent agency in the Office of the Prime Minister. The industrial promotion policy has placed special emphasis on types of industry which utilize local raw materials, such as tin smelting and rubber tyre manufacture, two of the large scale industries which received promotion privilege during the Plan period.

Table 4

Number and Capital of Firms Receiving

Incentives under the Industrial Promotion Act : April 1959 - June 1966

	Total Registered Capital (millions of baht)			Thai Companies	Joint Ventures	Foreign Companies	Total
	Thai	Foreign	Total				
1959 - 1961	671.4	196.8	868.2	50	46	5	101
1962	252.5	122.6	375.1	17	27	3	47
1963	337.6	191.5	529.1	23	38	5	66
1964	261.8	248.8	510.6	18	43	2	63
1965	157.1	91.6	248.7	27	33	-	60
1966 (6 months)	281.5	134.0	415.5	9	12	-	21
	1,961.9	985.3	2,947.2	144	199	15	358

22. To provide development finances for large scale industries, the Industrial Finance Corporation of Thailand granted loans with low interest rates to 69 firms for a total value of 162 million baht although it encountered delays in the processing of loans and a shortage of capital funds.

23. The Ministry of Industry developed programmes to assist small scale industries. A Small Industry Loan Board was established in 1964 to complement the programme of the Industrial Finance Corperation and it approved loans to 123 firms with a total value of 29 million baht. The Management Development and Productivity Centre at the Ministry of Industry played an increasing role in the improvement of industrial management and productivity. A preliminary survey of the feasibility of establishing industrial estates was completed, and the Government acquired a site at Rangsit to develop as an estate for small-scale industry.

24. Mineral production increased during the Plan period as the Department of Mineral Resources continued its programme of geological surveys to increase the known reserves. In 1965 tin output was 26,419 tons, as compared with 16,757 tons in 1960. The rising world tin price and the increase in the international tin export quota to 14 % in 1966 stimulated geological surveys to determine the size of reserve deposits. Approximately one million tons of tin deposits have already been discovered on land and there are favorable indications that deposits off-shore are of considerable magnitude. After the opening of an iron mine at Nakhon Si Thammarat, iron production increased from 11,475 tons in 1960 to 750,477 tons in 1965 most of which is exported to Japan. Large deposits of iron ore totalling approximately 35 million tons have been discovered, mostly in Loei Province. Production of other mineral products also expanded significantly. The output of lead increased 164 % from 4,600 tons in 1960 to 12,403 tons in 1965. Lignite, wolfram, and fluoride production also increased above the 1960 level. The production of gypsum however decreased from the 1964 record of 41,900 tons to 11,240 tons in 1965 and there was considerable carryover from the previous year, although it is expected that the demand for gypsum will increase with the rise in cement production.

Power

25. The progress in the development of power is reflected in the increase of generating capacity from 288,700 K.W. in 1961 to 552,600 K.W. in 1965. This can be mainly attributed to new hydro dams at Yanhee, Nampung and Nam Pong, and the establishment of the Krabi lignite plant and the North Bangkok power plant. Major power transmission projects implemented during the Plan period included the construction and improvement of the 1st and 2nd stages of the Yanhee project in the North, Contral Plain and the East and the distribution network for the Krabi project.

Transport and Communication

26. Considerable progress was achieved in the development of the communication system, which included postal, telephone and telecommunication services. By the end of 1966, the installation of a micro-wave system for inter-regional communication had been completed in the East and construction work was underway in other regions. There were increases in the metropolitan and provincial telephone services and by the end of 1966 there were approximately 55,000 telephone lines in the Bangkok-Thon Buri area and 28,000 telephone lines in the provinces, compared with a total of 40,607 telephone lines in 1961. However, further expansion is required as the number of existing telephones has not kept up with the rapid increase of public demand.

27. A Highway Plan was formulated and adopted during the First Plan period. At the end of 1965, the total highway network equalled 9,482 kilometres, of which 60% was paved with asphalt or concrete and the rest was laterite or earth-surfaced; see Table 5. During 1966, there were 12 highway projects under construction with a total length of 1,235 kilometres, all except two of which were let to private contracting firms. The execution of several of the highway projects was delayed by the slowness in administration, particularly in bidding and the selection of contractors, the shortage of engineers to supervise construction and problems of land reclamation.

Table 5

Increase of National Highways during the First Plan

(kilometres)

Types of Roads	1961	1962	1963	1964	1965
Concrete and asphalt	3,108	3,708	3,966	4,702	5,031
Stone surface	1,668	1,499	1,342	1,019	853
Laterite and earth	3,723	3,759	3,807	3,682	3,598
Total	8,499	8,966	9,115	9,403	9,482

28. Railway development was mainly concentrated on improving the efficiency of passenger and freight services by the provision of additional freight cars, diesel locomotives, and the renovation of major railroad yards. The construction of the 250 kilometre Kaeng Khoi-Bua Yai by-pass line, which began in 1963, was about 60 % completed. See Table 6.

Table 6

Development of the Railway System during the First Plan

Year	Steam Locomotives	Diesel Locomotives	Freight cars	Passenger Cars	Length of Track (kms.)
1961	306	65	7,207	802	4,030
1965	283	168	7,937	760	4,178

29. A survey of the volume of river traffic was undertaken in order to gather necessary data for the formulation of a water transport development programme. Dredging operations at Kangtang harbour in the South were initiated so that port will be able to accomodate large coastal vessels up to 600 tons without waiting for highwater. The port of Bangkok, increasingly congested over the past several years, was also expanded and a feasibility study of the establishment of second deepsea port on the eastern seaboard was undertaken.

of 200,000 cubic metres per day.

Public Health

34. Medical services were improved by the expansion of the existing 84 provincial hospitals and the conversion of the four provincial hospitals at Phitsanulok, Songkhla, Nakhon Ratchasima and Chanthaburi into Regional Hospitals. In the provincial hospitals the ratio of hospital beds to population was improved from 1:3,700 in 1963 to 1:2,800 in 1966. The number of hospital beds in Bangkok was raised from 4,466 in 1963 to 5,056 in 1966 and medical research units were established in the provinces.

35. Effective measures were undertaken for the control of infectious diseases and the death rate from filariasis, yaws and cholera was reduced. New chest clinics were opened in Yala, Khon Kaen and Chiang Mai. About 217 First Class Health Centres and 881 Second Class Health Centres were in operation by the end of 1966, and the major bottleneck preventing more rapid expansion was the shortage of medical staff, especially doctors. Notable progress was achieved in the malaria eradication programme which has reduced malaria transmission to a low level in the major areas of infection. Regular DDT spraying has already covered a population of about 19.3 million and training has been provided to 7,000 malaria eradication personnel.

Education

36. The First Plan emphasized the formulation of educational policy in accordance with national manpower requirements. During the Plan period, primary education was improved both qualitatively and quantitatively by the expansion of classrooms, the increase in supply of teaching equipment, and the growing number of trained teachers. Efforts were made to extend compulsory education from 4 to 7 years. In 1966 the enrollment in all of the elementary schools was approximately 4,768,000 students, of which about 4,231,000 were studying in the lower compulsory elementary schools

37. The development of secondary education included the establishment of 2 comprehensive high schools to improve the technical and vocational abilities

of the students. At the end of 1966, the total enrollment in secondary schools was approximately 388,102 students, of which about 345,502 were in the general secondary stream and 42,600 were in the vocational stream. Teachers' training programmes were improved and expanded in order to increase the supply of qualified teachers. During 1966 the teachers' training courses had approximately 19,776 students, of which 14,498 were certificate students, 3,378 were higher certificate students and 1,900 were degree students. A loan of 120 million baht from the World Bank made it possible to start a project in 1966 for the improvement of 25 vocational schools.

38. A major development in higher education was the decentralization of higher education to regions outside of Bangkok. Universities were opened in ChiangMai and Khonkaen and preliminary work was completed on the establishment of a university in the South at Pattani, although difficulties were encountered in obtaining qualified faculty members. The existing universities, Thammasart, Chulalongkorn, Medical Sciences, Kasetsart and the Fine Arts Universities were improved by the construction of new buildings, extension of laboratories, and the increase in the number of both Thai and foreign teachers. During the academic year 1966, there was a total of 41,918 university students enrolled in all the universities of the country.

CHAPTER III

OBJECTIVES AND POLICIES OF ECONOMIC AND SOCIAL DEVELOPMENT

Objectives

1. The main objectives of the Second National Economic and Social Development Plan can be summarized as follows:

(i) Mobilization of human and natural resources for optimum utilization in expanding the productive capacity and national income of the country, so that the benefits of development can be shared equitably by all classes of people.

(ii) Promotion and maintenance of social justice; the preservation of social stability, national institutions, customs and culture; and the provision of relief to people in isolated areas who cannot effectively help themselves.

(iii) Maintenance of economic and financial stability to enable the development process to continue on the basis of sound values and productive investments for long term growth.

(iv) Preservation of national security, which depends in the final analysis upon the economic strength and social unity of the country.

Policies

2. In accordance with the above objectives, the overall economic and social policies are as follows:

(i) To increase the productive capacity and national income of the country, which will raise the people's standard of living, and to ensure an equitable distribution of the benefits of development :- The Government wishes to improve the productive capacity and efficiency of the economy and to raise the people's standard of living by increasing private income and keeping down the cost of living. It is the policy also to distribute the benefits of development to people all over the country, especially in the rural areas. Public development projects are expected to increase per capita national income and to narrow regional differences in income distribution.

(ii) To strengthen the base and the overall balance of the country's economic structure: Thailand is an agricultural country and the majority of the Thai people depend upon agriculture for their livelihood. The country's development policy considers agriculture the key sector from which growth stimulants will flow to the other sectors in a pattern of balanced growth. The Government will encourage increased agricultural production and higher quality, as well as further diversification toward products which command high prices in the world market and which serve as raw materials for domestic industries. Concerning industry, the Government will promote private enterprises and encourage private investment, both domestic and foreign, especially joint ventures using domestic raw materials and available labour. In the fields of commerce and services, the Government wishes to encourage competition within the limits of the public interest and to provide Thai nationals with greater opportunity to realize successful occupations in these fields.

(iii) To promote employment and develop manpower by improving skills of labour at different levels: An important consideration in increasing the country's productive capacity is realization of the optimum use of human resources. If these resources have low working efficiency or long periods of unemployment, there will be economic waste which is a burden on society. The Government's policy is therefore to promote the expansion of employment and the development of manpower at all levels. The development of education has not been commensurate with manpower requirements and shortages of skilled labour at various levels have occurred. This is one of the most important obstacles to development. In order to plan for the future growth of the country, it is crucial to train today's youth to become economically efficient citizens with a sense of responsibility towards the society in which they live. Measures will also be taken to provide the members of the labouring class with sufficient income to live decent and healthy lives.

(iv) To use natural resources more efficiently and in harmony with the policy of conserving resources for future generations: Thailand is reasonably well endowed with natural resources, such as soil, water, timber and ores. The Government will encourage the use of these resources to obtain maximum returns consistent with the public interest. It also plans to conserve natural resources by controls on the rate of exploitation and surveys of new sources of supply to compensate for the exhaustion of present sources. These measures will increase both the quantity and the quality of available resources, and consequently the productive capacity of the country.

(v) To promote scientific progress and the application of modern technology: In the modern world of scientific progress a country must possess sufficient technical knowledge to be able to interpret and apply the results of new inventions and research to its own conditions. The Government therefore plans to extend its scientific services to private enterprises and to apply relevant technological advances to public development projects.

(vi) To put the social system on a progressive and equitable basis: Economic development must proceed together with social development because social as well as economic problems affect the standard of living of the people. The Government policy is to achieve greater social equality by ensuring that public services and capital formation are in the genuine interests of the public and that the benefits of development reach all sections of the population. For those who cannot effectively help themselves, the Government will provide relief in order to realize social justice. In addition to the direct development projects, the Government will promote social welfare by giving protection to people's personal security and property and it will cultivate individuals' responsibility to themselves and to their society. It will also support the national culture, customs and morality - criteria of the stage of a society's civilization.

(vii) To maintain financial stability, avoid inflation, encourage private savings and investment, and to increase public revenues by equitable means: A rising level of public expenditures is required by the growing size of the government, the external threats to national security, and the insistent demands of economic development. Public revenues therefore have to be increased to avoid the inflationary pressures which would hamper development efforts and adversely affect the standard of living of the majority of people. The increase

30. Many projects for the improvement of air communications were implemented under the First Plan. These included the construction of an eastern runway at Don Muang Airport to relieve traffic congestion and the construction of additional all-weather runways at Phitsanulok, Lampang, Chiang Mai, Mae Hong Son and Nong Khai. New planes were purchased for domestic flights and studies of a second commercial airport for Bangkok were conducted.

Community Facilities and Social Welfare

31. Community development coverage was further extended into the remote areas of the Northeast and South in order to encourage the people to improve their position through their own initiative. Since its introduction in 1962, community development has reached 15 provinces in the Northeast and 4 border provinces in the South and has been implemented on a pilot basis in some parts of the Central Plain and the North.

32. The forty Self-help Settlements are one important type of social welfare project. Approximately 2,800 families have been allotted land under the land settlement scheme and additional settlements were established for people who were evacuated from the flooded areas above the Bhumipal and Nam Pong dams. Remaining problems in the settlement schemes include the shortage of heavy equipment for land clearing and the need to increase the size of land holdings, provide water for irrigation and improve the land for cultivation. A subsidized housing programme for low-income groups was also introduced during the Plan period. Twenty blocks of flats were constructed in the Din Dang area of Bangkok to accommodate 1,312 families, but this is inadequate to satisfy the increasing demand for housing.

33. A major public utility project was the improvement and expansion of the waterworks for the metropolitan area of Bangkok - Thon Buri. Although the productive capacity was increased from 174,249 cubic metres per day in 1961 to 381,238 cubic metres per day in 1966, the water supply still lags behind the rapidly increasing demand and difficulties were encountered in futher accelerating construction. Forty one new provincial water works were constructed and in 1966 there were 125 provincial water works with total capacity

in public revenues will be secured on an equitable basis which penalizes no particular section of the community. The Government will also encourage private savings for investment in worthwhile projects with high rates of return. The country's balance of payments will continue to be favourable and the international monetary reserves will be maintained at a safe and adequate level.

(viii) To coordinate the Economic and Social Development Plan with the maintenance of national security: The maintenance of national security and sovereighty is of supreme importance. The Government intends to develop the national economic and social system so as to strengthen the ability to preserve national security. The Economic and Social Development Plan therefore contains many projects designed to support, either directly or indirectly, the preservation of national security, such as the Accelerated Rural Development project and the construction of highways in areas where subversive elements have appeared.

(ix) To accelerate implementation of infrastructure projects: Owing to the limitation of financial and human resources, only the most significant projects could be included in the present Plan. Special emphasis has been accorded to sectors which have been lagging behind, such as rural development and education. Infrastructure projects which contribute directly to productivity such as irrigation, highway construction, and the generation of energy will also be continued.

3. In implementing the Plan programmes, special attention will be devoted to rural devlopment because the majority of the population in Thailand are village dwellers with a relatively low standard of living. The Government will therefore give special assistance to the agriculture sector and this will also induce development in other sectors.

CHAPTER IV

PLANNED ECONOMIC STRUCTURE AND TARGETS

1. The overall economic targets presented in this chapter indicate the broad framework of planned economic development in Thailand. Since the Thai economy operates principally as a private enterprise system, the government does not have direct control over the majority of economic decisions and can not plan the future economic structure with precision. The economic planning function has as its objective the economic use of development plan expenditures and the formulation of policy guidelines for the private sector. Nevertheless the targets in this chapter have been based upon careful analysis of the capacity of the economy for future growth. Representatives of the private sector have been invited to participate in detailed discussions evaluating the vitality of each part of the economy. The projections therefore represent a broad consensus of conviction in the rate of continuing development of the economy.

2. As shown in Table I, the Gross Domestic Product (GDP) at constant prices is expected to grow at the average annual rate of about 8.5 % during the five years of the Second Plan. During the First Plan period, the GDP growth rate accelerated from an annual rate of 6.5 % in the First Phase (1961 - 1963) to about 8 % in the Second Phase (1963 - 1966). Assuming a rate of population growth of 3.3 % per annum, as estimated in Chapter VI, the overall growth target during the Second Plan indicates an increase in real per capita output of over 5 % per annum,

3. The setting of the development target at a higher level than in the past is due to the expectation that the dynamic factors stimulating growth during the First Plan will increase in strength in the Second Plan period. The greatly expanded development expenditures, both in the private and public sectors, will generate more income and consumption expenditure through the expansion of economic activities and the creation of employment opportunities. A continuing increase in income from the sales of exports is also anticipated. A special impetus to growth will be supplied by the joint programmes of Thai and foreign governments. In addition, the rapid

expansion of tourism and other service industries will accelerate the development process.

4. During the First Plan period, the structure of the Thai economy underwent significant changes. Indicative of this structural change is the decline in the share of GDP originating in the agriculture sector from 36.7 % in 1960 to approximately 31.6 % in 1966. This trend is expected to continue during the present Plan. The target share of agriculture is projected to be only 26 % in 1971, while the sector maintains a 4.3 % annual growth rate. The principal private sectors taking up this slack are manufacturing, construction, transportation and communication, and banking, all growing at more than 10 % annually. This structural change will improve the overall balance of the economy by diversifying its production base. The proportion of the total labour force employed in agriculture is expected to fall from 80 % in 1966 to about 75 % in 1971. However, agriculture will continue to be the most important economic sector, in terms of generating employment, producing raw materials for domestic industries, and earning foreign exchange by providing the country's major exports.

Table I

Gross Domestic Product Target for the Second Plan

(at 1965 prices)

(millions of baht)

Line	Industrial Origin	1960		1966[1]		Average Annual Growth Rate 1961 - 1966	1971 Targets		Average Annual Growth rate 1967 - 1971	Line
		GDP	Percentage Distribution	GDP	Percentage Distribution		GDP	Percentage Distribution		
1	Agriculture	20,988.3	36.7 %	27,540.6	31.6 %	4.6 %	34,031.7	26.0 %	4.3 %	1
2	Mining and Quarrying	1,039.3	1.8 %	1,927.4	2.2 %	10.9 %	2,659.6	2.0 %	6.6 %	2
3	Manufacturing	5,948.8	10.4 %	10,583.5	12.2 %	10.2 %	17,799.8	13.6 %	10.9 %	3
4	Construction	2,220.7	3.9 %	4,415.0	5.1 %	12.3 %	7,577.7	5.8 %	11.4 %	4
5	Electricity and Water Supply	259.4	0.5 %	697.5	0.8 %	18.2 %	1,595.6	1.2 %	18.0 %	5
6	Transportation and Communication	3,997.0	7.0 %	6,666.0	7.7 %	9.0 %	11,217.4	8.6 %	11.0 %	6
7	Wholesale and Retail Trade	10,193.4	17.8 %	16,167.8	18.6 %	8.0 %	24,154.8	18.6 %	8.4 %	7
8	Banking, Insurance and Real Estate	1,372.1	2.4 %	3,433.5	3.9 %	16.6 %	7,527.7	5.7 %	17.0 %	8
9	Ownership of Dwellings	2,872.2	5.0 %	3,563.7	4.1 %	3.7 %	4,548.3	3.5 %	5.0 %	9
10	Public Administration and Defence	2,911.5	5.1 %	4,392.6	5.1 %	7.2 %	7,741.2	5.9 %	12.0 %	10
11	Services	5,361.0	9.4 %	7,597.6	8.7 %	6.0 %	11,960.4	9.1 %	9.5 %	11
12	Gross Domestic Product	57,163.7	100.0 %	86,985.2	100.0 %	7.3 %	130,814.2	100.0 %	8.5 %	12

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[1] 1966 estimates are based on incomplete (seven - month) data

Production by Sector

5. Agriculture : In the past, the rate of growth of agricultural production had tended to fluctuate, thus imparting an element of instability to the farmers' income. However, under the First Plan the Government initiated a number of important projects such as the construction and improvement of irrigation and flood control systems. These projects will reduce the year-to-year fluctuation of agricultural output and contribute to the stability of the income of farmers and of the nation as a whole. The growth pattern of agricultural output is dominated by crop production which accounted for nearly three quarters of the sector's total output in 1965. The growing flow of benefits to farmers from development projects in agriculture is expected to produce a growth rate of 4.4 % per annum for all crops. Paddy, accounting for 43 % of the value of all crops in 1965, is expected to reach 13.7 million tons in 1971. Other crops which will contribute significantly to the agricultural sector's projected growth include maize, oil bearing beans, industrial cotton, and vegetables. Maize production, most of which will be exported, is expected to increase at an average annual rate of at least 7 %. Output of kenaf and cassava will probably grow at somewhat slower rates principally because demand in foreign markets is estimated to be moderate. Output of the fishing industry will increase by 4.7 % per year owing to the Department of Fisheries' programmes, some of which are already well under way, to promote sea fishing by the establishment of the training centre for deep-sea fishing and the improvement of research work by marine fishing stations. The output target for meat has been set to yield an increase of 5 % per year to meet the increasing demand created by the rapidly rising incomes of a growing population. Agricultural extension programmes will be focused on improving breeding and raising of livestock. Output of lumber and forest products will increase rather slowly, partially because of conservation efforts to ensure an adequate supply of lumber for the future.

6. Mining and quarrying : This industry contributed only slightly more than 2 % to the GDP in 1966, but that part which was exported, mostly tin,

accounted for nearly 9 % of the national export value. World demand for tin is expected to remain strong and new offshore discoveries in the South indicate possible output increases, within the constraints of the International Tin Council. Over half of the value added in this sector is attributable to tin, and one-third is attributable to stone and gravel quarrying, raw materials for the rapidly expanding construction industry. The growth target for this industry during the Plan period is set at 6.6 % per year, influenced strongly by the growing domestic demand of the construction industry.

7. Manufacturing : The real growth rate of manufacturing has averaged over 10 % annually between 1961 and 1966. At the same time, its share of GDP has increased from 10.4 % in 1960 to approximately 12.2 % in 1966. Detailed industry targets, presented in Table 2, show an average annual growth rate over the Second Plan period of about 10.9 % per year and a 13.6 % share of GDP by 1971. In 1966, food processing (rice milling, slaughtering, flour milling, sugar refining etc.) accounted for about 29.7 % of total manufacturing value added. By 1971, it is expected that this share will decline to 23.4 %. The principal industries taking up this "gap" will include paper, steel, beverages, textiles, glass, chemicals, and car assembly. This group of rapidly expanding industries accounted for a 24 % share of manufacturing in 1966 and will probably account for a 38 % share in 1971. The further expansion of construction activity, both public and private, will put heavy demands on the cement, cement products, and metal fabrication industries.

8. Construction : The growth rate of this sector will decline slightly from 12.3 % per year during 1961 - 1966 to about 11.4 % during the Second Plan period. This is still a very high rate, which is warranted by the expected heavy demands in the private sector for commercial construction together with record planned budget allocations for infrastructure projects such as highways, irrigation dams and energy production. It is estimated that value added in construction will account for 5.8 % of GDP in 1971, compared with 3.9 % in 1960. The proportion of public construction is expected to rise sharply. Private construction activity will probably slow down over the Plan period because significant commercial capacity has been built up during the 1963 - 1966 period.

9. Electricity and water supply : Although electricity and water supply contributed less than 1 % to the GDP in 1966, their importance to overall economic development is critical. Over the period 1961 - 1966 this sector has grown on the average by about 18 % per annum, representing a rapid build up of power - generating capacity, as well as the expansion of the water works. The completion of several large-scale electricity projects is contributing significantly to the present growth. Over the Plan period, the target for electricity generation and water supply is to maintain the past rate of 18 %. Much of this growth will result from improved electricity distribution facilities and added generating capacity both in Bangkok - Thon Buri and in the provinces.

10. Transportation and communication : Growth in transport and communication at 11 % per year from 1966 to 1971 will increase the sector's share of the GDP from 7.7 % in 1966 to about 8.6 % in 1971. The rapid rate of expansion in highway transportation is reflected in the high level of imports of trucks and buses, as well as substantial improvements in the highway system. In addition, the building of a supplemental railroad line from the Northeast to Sattahip is expected to take some of the pressure off highway transportation facilities. An accelerating demand for communication services usually accompanies rapid economic development.

11. Wholesale and retail trade : The contribution of trade to the GDP is second only to agriculture and stood at over 18 % in 1966. This sector is expected to grow at a slightly lower rate than GDP, and to account for an 18.6 % share in 1971. Its contribution reflects the value added to all output through the distribution from the producer to the final consumer, and is generated almost entirely by private enterprises. The foreign trade sector will continue to be a vital factor in stimulating business expansion.

12. Banking, insurance and real estate : This sector has grown at the very fast rate of 16.6 % per year from 1961 to 1966, and is expected to continue to grow at about a 17 % annual rate during the Plan period. This rate of expansion will raise its share of the GDP from 3.9 % in 1966 to 5.8 % in 1971. Banking has experienced the most rapid growth in its history. Demands for financing expansion in various sectors are anticipated to accelerate as the credit system expands. The rapid growth of the insurance business is characterized by the increased diversification of the types of insurance written, particularly casualty, accident and fire insurance.

13. Ownership of dwellings : This sector represents the annual net rental value of all residences, whether they are owner occupied (in which case the value would be imputed) or rented. From 1961 to 1966 the GDP originating from this sector has grown by 3.7 % per year. The annual growth rate over the Plan period is estimated to accelerate to 5 % in view of the higher value and rate of increase in residential construction.

14. Public administration and defence : The value added in Public Administration and Defence will increase at 12 % annually over the Second Plan period. This classification includes only the current expenditures of the government (like salaries of civil servants) and excludes capital expenditures. The sector's contribution to the GDP will increase from about 5 % in 1966 to nearly 6 % in 1971.

15. Services : The growth rate of this sector, which includes public and private education, medical services, hotels, restaurants and other recreation services, has averaged 6 % per year between 1961 to 1966. With the rapid increase in tourism which is creating heavy demands for hotel and recreation

facilities, the value added from this sector is expected to increase by 9.5% per annum over the Second Plan period;

Investment

16. Investment is one of the most important factors in economic development. Capital formation occurs both in directly productive projects and in the public facilities which complement and induce productive investment. It is necessary therefore to examine the adequacy of the nation's investment capacity to reach the target rate of economic growth.

17. During the period of the Second Plan, the marginal capital output ratio will increase from 2.5 : 1 during the First Plan period to about 2.75 : 1*. This is due to the relative rise in public sector capital expenditures which have a longer "pay - off" period then capital formation in the private sector. Nearly one half of public capital formation is for irrigation, health, education, defence and community facilities which add significantly to output only in the intermediate or long run.

18. Using the marginal capital - output ratio of 2.75 : 1, capital formation valued at 130.7 billion baht will be required during the five years of the Plan in order to reach the target for national economic growth of 8.5% per year. The capital formation estimates for both public and private sectors are shown in Table 3, The annual rate of increase will be less than during the First Plan but total capital formation as a percentage of GDP will continue to grow from 22% in 1966 to about 23% in 1971.

19. Capital formation in the public sector for the Second Plan period is estimated at 37.9 billion baht. The large public capital expenditures in infrastructure facilities are considered essential for the successful realization of the Plan targets. The highest proportion of these expenditures will be for transportation and communication purposes. Second highest are capital expenditures in the agricultural sector, particularly in the field of irrigation, which are principally aimed at increasing output to meet consumer demand as well as to provide higher export earnings.

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* The marginal capital output ratio has been defined for the Plan as the ratio of Gross Fixed Capital Formation to the increment of GDP with a one year time lag.

Table 3

Target Gross Fixed Capital Formation During the Second Plan

(at 1965 prices)

(millions of baht)

Type of Capital Goods	1967 - 1971 Cumulative
I. Imports of Capital Goods (excluding contruction materials)	36,635
II. Building and Construction	64,144
1. Private Construction	35,613
2. Public Construction	28,531
III. Other Domestic Capital Formation	29,955
Total	130,734
Public Sector	37,900
Private Sector	92,834
Total	130,734

20. The two main components of private capital formation are the imports of machinery and equipment and domestic construction. A major portion of the imported machinery and equipment will be invested in the manufacturing sector, particularly in new industries, whereas the traditional industries like rice and tapioca mills will account for a small part of the sector's capital formation. Nearly one third of the imported capital goods will consist of transport equipment, the bulk of which will be for highway transport.

21. Over 38% of total private investment expenditures will be for construction, consisting mainly of commercial and industrial buildings. Construction of commercial buildings is expected to increase further in response to heavy demands created by the rapid growth in tourism and the increased commercialization of economic activity. Residential construction, particularly in urban areas, will increase significantly because of rising incomes as well as an urbanization trend.

The Overall Economic Balance

22. In formulating a national economic development plan it is necessary to consider carefully the changes in the structure and the overall balance of the economy. This will help to ensure that economic development expenditures are consistent with the maintenance of overall stability and balance of the economic system.

23. Table 4 presents estimates of total demands upon the national production of goods and services or Gross Domestic Product, which is expected to grow at 8.5% per year and to total 559 billion baht during the five years of the Second Plan. These demands occur in the private and public sectors for consumption and capital formation. In the foreign sector, an import surplus of 16.8 billion baht is projected.

24. Capital formation expenditures in the private and public sectors are expected to amount to 37.9 and 92.8 billion baht respectively during the Second Plan period. Government consumption, the major component of which is expenditures on wages and salaries of civil servants, is budgeted to grow 13.3% annually and to total 72 billion baht. This is due to increasing government responsibilities in general government functions and defence coupled with

Table 2

Target for Manufacturing Sector Value Added During the Second Plan

(value added at 1965 prices)

(thousands of baht)

Line	Industry	1960	1966 1/	1971 Targets	Average Annual Growth Rate 1960 - 1966	1967 - 1971	Line
1	Food	1,902,048	3,148,824	4,161,940	8.9 %	5.5 %	1
2	Beverage Industries	649,888	1,2[illegible]7,903	2,416,678	11.9 %	14.1 %	2
3	Tobacco Manufacturing	889,033	1,330,621	1,600,414	7.3 %	5.1 %	3
4	Manufacturing of Textiles	161,868	396,045	758,534	17.1 %	13.4 %	4
5	Manufacture of Footwear, Wearing Apparel and Made-up Textiles	268,728	345,295	481,439	4.3 %	7.1 %	5
6	Wood & Cork except Manufacture of Furniture	292,464	605,016	883,690	14.0 %	7.8 %	6
7	Furniture & Fixtures	88,523	126,552	223,023	6.4 %	12.1 %	7
8	Paper & Paper Products	24,292	31,677	191,939	6.7 %	37.8 %	8
9	Printing, Publishing & Allied Industries	133,570	256,427	339,501	10.6 %	10.6 %	9
10	Leather & Leather Products except Footwear	120,280	134,798	157,027	2.2 %	3.2 %	10
11	Rubber Products	226,938	268,175	412,620	3.4 %	9.1 %	11
12	Chemical & Chemical Products	426,135	635,368	943,004	7.3 %	7.5 %	12
13	Non-Metallic Mineral Products Except Products of Petroleum and Coal	267,443	701,568	1,172,744	17.6 %	11.1 %	13
14	Iron & Steel Basic Industries	17,119	10,938	34,737	- 4.0 %	26.1 %	14
15	Electrical Machinery, Apparatus, Appliances & Supplies	27,400	39,466	120,442	3.6 %	25.1 %	15
16	Machinery & Transport Equipment	244,455	338,250	544,755	6.1 %	10.1 %	16
17	All others	208,542	977,953	3,307,285	31.4 %	27.4 %	17
18	Total	5,948,776	10,583,476	17,799,82[illegible]	10.3 %	10.9 %	18

1/ 1966 estimates are based on incomplete data the rising maintenance costs of the accelerated economic and social development programme and the internal debt repayment services.

25. One of the most important long-term objectives of the Economic and Social Development Plan is the raising of the people's standard of living, as measured by the level of private consumption expenditure. Table 4 indicates that private consumption will increase at annual rate of 8.2% compared to the population growth rate of 3.3%. The resulting increase in per capita private consumption of nearly 5% per year reflects an appreciable rise in the standard of living of the people in the next five years. However, the projected increase in private consumption must be consistent with capital formation expenditures both in the private and the public sectors, in order to maintain the stability of financial relationships which has been one of the hallmarks of economic progress in Thailand.

26. In the foreign trade sector, targets have been set on the basis of constant prices and the assumption of sustained international demand for Thai agricultural exports. It is estimated that exports of goods and services will increase at annual rate of 7.2%. Rice will continue to maintain its predominance among all exports. Exports of services such as those of the tourist and other service industries are expected to increase at a slower rate than that of merchandise exports.

27. Projections of imports have taken account of demands for capital goods, the bulk of which will consist of transport equipment and construction machinery for the rapid expansion of manufacturing, construction and transport industries, and also for a higher level of consumption goods imports. The total value of imports of goods and services is estimated to grow by 9.3% per year. Imports of services such as transportation, insurance, and other services, are expected to increase at a slightly lower rate than that of merchandise imports.

28. The growth rates of both exports and imports will be lower during the Second Plan period than from 1961 to 1966. Exports of goods and services will, therefore, not be adequate to pay for the level of imports required for economic growth. However, the resulting balance of trade deficit is expected to be more than offset by foreign capital inflows in the form of loans, grants and investment.

Table 4

Target Overall Economic Balance

During the Second Plan

(at 1965 prices)

	1960 1/		1966 1/		1971		1961 - 1966		1967 - 1971	
	Million Baht	Percentage of GDP	Million Baht	Percentage of GDP	Million Baht	Percentage of GDP	Million Baht	Average Annual Growth Rate	Million Baht	Average Annual Growth Rate
Gross Domestic Expenditure	57,200	100.0 %	87,000	100.0 %	130,[illegible]00	100.0 %	433,900	7.3 %	559,200	8.5 %
Government Sector : (Subtotal)	8,300	14.5 %	14,700	16.9 %	26,100	20.0 %	66,500	10.2 %	109,900	12.3 %
Consumption 2/	5,900	10.3 %	9,100	10.5 %	16,700	12.8 %	41,300	7.9 %	72,000	13.3 %
Gross Capital Formation	2,400	4.2 %	5,600	6.4 %	9,400	7.2 %	25,200	16.0 %	37,900	10.8 %
Private Sector : (Subtotal)	49,400	86.3 %	74,000	85.0 %	109,900	84.0 %	373,600	7.0 %	466,100	8.3 %
Consumption	41,800	73.1 %	59,000	67.8 %	89,200	68.2 %	306,100	6.0 %	373,300	8.2 %
Gross Fixed Capital Formation	7,600	13.2 %	15,000	17.2 %	20,700	15.8 %	67,500	12.8 %	92,800	8.7 %
Foreign Sector Balance 3/	- 500	- 0.8 %	- 1,700	- 1.9 %	- 5,200	- 4.0 %	- 6,200	-	- 16,800	-

1/ Figures relating to 1960 and 1966 includes estractor of changes in stocks and statistical discrepancy.

2/ Excludes transfer payments and dept repayments.

3/ Excludes foreign travel and investment income.

Long Term Economic Outlook (1971-1981)

29. The process of economic and social development requires sustained and consistent efforts beyond the limit of each Plan period. In drawing up the Second Plan, therefore, an attempt has been made to forecast the economic structure in the next fifteen years in order to provide a broad outline of the evolving strategy and the prospects of development under the Third and Fourth Plans (1971-1981). Should any drastic changes occur in the present political situation affecting the country's security, however, the long-term economic forecast will necessarily have to be reviewed.

30. The economic outlook is for continued rapid growth in output during the Third and Fourth Plans. An estimated annual growth rate of not less than 7% is expected to nearly double the per capita Gross Domestic Product between 1965 and 1981. Private consumption will continue to grow rapidly, and the benefits of development will reach the people and increase their personal interest in the process of development.

31. Capital formation will grow at a slightly lower rate than during the Second Plan period, and will increase as a percentage of Gross Domestic Product from 23% in 1971 to about 24% in 1981. Government investment also will not rise as rapidly as during the first two Plans owing to the completion of many major public infrastructure projects. Development expenditures in the public sector will increasingly emphasize social and manpower development projects. The rate of growth of private investment is expected to accelerate as a result of government measures to provide basic facilities and to develop the capital market and other financial institutions required for the efficient financing of modern industry and commerce.

32. The change in economic structure during 1971 - 1981 will continue along the trend observable during the first two Plans. The share of agriculture in the Gross Domestic Product will gradually decline from 26% in 1971 to about 22% in 1981. The compensating increase will appear in such modern, fast growing sectors as manufacturing, construction, transportation and communications, wholesale and retail trade, and banking. The manufacturing sector in particular will increase its share of the GDP from 14% in 1971 to

about 17% in 1981. These other sectors will be able to increase their labour force more rapidly than agriculture, with the result that the agricultural force as a percentage of total will decline from 75% in 1971 to about 70% in 1980 and farmers will continue to earn a significant portion of their income in non-agricultural persuits. This will further diversify and help to improve the overall balance of the economy.

33. On regional economic development, the expansion of the transportation and communication system is expected to draw together economically all the geographical regions of the country. The relative importance of the Central Plan, particularly of Bangkok-Thon Buri, as the economic centre of the country will decline somewhat. Conditions in the Northeast will improve significantly owing to the accelerated development programme in this region. The projected construction of a new sea port in the Eastern seaboard and a new highway and railroad linking the East directly with the Northeast will improve the prospects of the Eastern provinces becoming new industrial and commercial centres. The vast urbanization of the Bangkok-Thon Buri and other municipal areas will create economic and social problems which require massive government development expenditures for social services and community facilities.

34. The Government's rural development projects will begin to bear fruits. Productivity and hence the standard of living of agriculturists in all regions will improve. Diversification of agriculture will continue, with major crops such as rice, rubber, maize and kenaf retaining their importance and with additional products gaining in importance such as oilbearing crops, fibre crops and marine fish. Development in the rural society will enable agriculturists to follow their occupation with greater independence and to combine into associations for purposes of bettering themselves. The difference between the standard of living of town and village dwellers will decline. However, agricultural development depends largely upon efficient and economical uses of natural resources. This indicates the importance of thorough planning for the use, improvement and conservation of these resources.

35. The foreign trade sector will continue its critical role in the modernization process. Although rice will still be the single biggest export of the country, its relative importance will decline. New exports will

include other agricultural products and mineral ores. This is due to the increasing diversification of the economy and to the government's export promotional efforts aiming at products in demand in the world market. On the side of imports, capital goods will continue to maintain their importance. Raw materials imports will increase in order to meet the demand of expanding domestic industries. Although the unfavourable balance of trade will persist, the expected inflow of foreign private and official capital will cover the foreign exchange gap. The country's financial stability will therefore remain unaffected during the period considered.

36. Sustained economic growth at a satisfactory rate will depend on the government's ability to provide continued political stability, internal security, protection to the citizens in the honest pursuit of their occupations, balance of justice among various sections of the community, and generally a favourable administrative structure. On foreign relations, it is expected that Thailand will play an increasingly important role in international economic cooperation associations, particularly those aiming at economic, social and cultural cooperation in the Southeast Asia region.

CHAPTER V

RESOURCES AND FINANCING

1. The impressive performance of the Thai economy during the first five years of the First Plan (1961 - 1965) was due to the ability of the Government to mobilize its resources effectively for productive purposes while maintaining monetary stability. The rapid expansion of both foreign and domestic private investment also was a major factor contributing to the growth rate of Gross Domestic Product in excess of 7% over the period.

2. Foreign exchange reserves increased significantly during the First Plan due to the rapid growth of exports and the recent increase in U.S. military expenditures; reserves equalled 17,000 million baht at the end of September, 1966. The projected increase in foreign reserves combined with the rise in government expenditures under the Second Plan indicate the potential for inflationary pressure on the Thai economy.

3. The target for the annual growth of Gross Domestic Product during the period of the Second Plan is 8.5%. Realization of this ambitous target will require a continuing high level of both public development expenditures and private investment. The government must, therefore, shape its fiscal and monetary policy so that allocation of economic resources will be in accord with development objectives.

The Public Sector Programme

4. Estimated total public expenditures will rise to 134,520 million baht during the Plan period which represents an increase of 75.5% compared to the First Plan. Of the total, 112,575 million baht will be financed by the central government from budget appropriations, the remainder will be financed by the state enterprises and local government units and by foreign loans and grants. Development expenditures of 57,520 million baht will be 42.7% of total outlays, as compared to 37.0% during the period 1961 - 1965.[1] Non-development

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[1] Development expenditures for capital and current expenditures on development projects. The current costs of operating development projects are considered developmental for the duration of the Plan period.

expenditures will equal 77,000 million baht. The international tension in Southeast Asia has compelled the government to expand its non-development expenditures especially for national defense and internal security. Other factors which will cause non-development expenditures to rise are an increase in debt services, the maintenance costs of projects completed during the First Plan period, and an increased salaries for low level government officials.

Public Development Expenditures

5. Total public development expenditures under the Second Plan will be 57,520 million baht, consisting of 35,575 million baht under the central government budget, 6,345 million baht from the self financing of the state enterprises and local government units, and 15,600 million baht from foreign loans and grants (including foreign exchange loans from the Bank of Thailand). The major portion of the development expenditures will be allocated for continuation of infrastructure programmes in transport and communications, irrigation and power. The Government will initiate new projects only if they are of high priority. Greater emphasis will be placed on social development, especially education and public health, and the development of backward and remote areas; see Table 1

Table 1

Public Development Expenditures by Sectors and by Sources of Funds for the Second Plan

(millions of baht)

Sectors	Govern-ment Budget	Foreign Loans 1/	Foreign Grants	Self-Financed by State En-terprises & Local Gov't 2/	Total
Agriculture and Cooperatives	8,420	1,990	550	400	11,360
Industry and Mining	600	-	150	165	915
Transport and Communi-cations	9,190	4,140	1,310	2,460	17,100
Power	1,375	2,260	330	1,005	4,970
Commerce	180	-	-	-	180
Community Facilities & Social Welface	5,210	1,640	1,120	2,300	10,270
Public Health	1,800	-	755	15	2,570
Education	5,500	570	535 3/	-	6,605
Unallocated	3,300	-	250	-	3,550
Regional Development Fund	(400)				
Accelerated Rural Development Fund	(1,000)				
Development Fund for Remote Areas	(220)				
Development Fund for Specific Areas	(80)				
Counterpart Funds	(1,600)				
Total	35,575	10,600	5,000	6,345	57,520

1/ Including foreign exchange loans from the Bank of Thailand.

2/ Including 2,300 million baht revenue from Local Government and Rubber Cess Fund of 400 million baht.

3/ Non project grants : Peace Corps, general scholarships, etc.

Table 2

The Second Plan Public Development Expenditures by Sectors

(millions of baht)

Sector	Estimated Actual Expenditures		Planned Expenditures	
	1961-1966	%	1967-1971	%
Agriculture	3,900	13.9 %	11,310	19.8 %
Industry and Mining	2,340	8.3 %	915	1.6 %
Transport and Communications	7,360	26.1 %	17,100	29.7 %
Energy	4,740	16.8 %	4,970	8.6 %
Commerce	-	-	180	0.3 %
Community Facilities & Social Welfare	5,560	19.7 %	10,270	17.8 %
Public Health	1,060	3.8 %	2,570	4.5 %
Education	2,080	7.4 %	6,605	11.5 %
Unallocated	1,140	4.0 %	3,550	6.2 %
Total	28,180 1/	100.0 %	57,520	100.0 %

1/ About ฿ 4,000 million lower than indicated in the First Plan.

6. Public development expenditures of 57,520 million baht can be classified by sectors as follows (see Table 2 and 3):

(i) Agriculture and Cooperatives - A cardinal objective of the Second Plan is to increase agricultural productivity so that the welfare of the country's rural population can be improved. Development expenditures for this sector will be 11,360 million baht or about 20% of total development expenditures. Most of the development expenditures will be for water resource development projects, research programmes and agricultural promotion. However, new project such as the Bank for Agriculture anc Cooperatives and the Farmers' Assistance Programme will further improve the farmers' investment opportunities and their ability to raise their living standards.

(ii) Industry and Mining - The development expenditures for this sector will be less than during the First Plan because the Government's policy is not to establish new state enterprises but to concentrate on services for promoting and assisting the private sector to develop industrial and mining opportunities.

(iii) Transport and Communications - The Transport and Communications Sector will continue to account for the largest share of development expenditures. 17,100 million baht have been allocated for transport and communications facilities, especially the construction of new highways, the improvement of the Bangkok port and the telephone and telecommunication services throughout the country. This includes 2,500 million baht for the improvement of the State Railway.

(iv) Energy - Since several substantial power projects were completed at the end of the First Plan, emphasis will be on the expansion of the original projects, and the improvement of power supply and distribution to meet the nation's rapidly rising demand. Consequently, the percentage share of the expenditure on the Power Sector will decrease compared to the First Plan.

(v) Commerce and Services - The development expenditures in this sector only amount to 180 million baht since the Government's role is restricted to providing technical services and formulating policies to stimulate private activity.

(vi) Community Facilities and Social Welfare - Development expenditures in this sector will increase substantially during the Second Plan period as the Government attempts to disperse development into the rural and remote areas. Projects such as the Accelerated Rural Development Programme and the Village Water Supply Project are examples of this new emphasis.

(vii) Public Health - The Public Health Sector will account for about 4.5% of total development expenditures, as compared to 3.8% during the First Plan. About 1,800 million baht of the total of 2,570 million baht allocated to this sector will be for the construction of medical facilities and the improvement of medical services in the rural area. The remainder will be spent on the prevention and eradication of diseases.

(viii) Education - The increase in development expenditures in the Education Sector is due to the Government's policy to emphasize education in order to raise the equality of the nation's human resources and stimulate progress. One aspect of the educational programme is the extension of compulsory education from four to seven years, thus increasing the financial requirements for the primary education level.

(ix) Unallocated - The unallocated funds of 3,550 million baht, or 6.2% of total development expenditures, consist of counterpart funds of 1,600 million baht, non project grants of 250 million baht and funds for rural and regional development of 1,700 million baht; the sectoral allocation of these funds cannot be determined in advance.

Table 3

Second Plan Government Budget-Financed Development Expenditures

(millions of baht)

Sector	1967	1968	1969	1970	1971	Total 1967-1971
Agriculture	1,495.05	1,624.22	1,684.41	1,747.21	1,869.39	8,420.28
Industry	125.30	133.90	126.81	105.23	108.25	599.49
Transport and Communications	1,739.68	2,060.21	2,089.02	1,780.58	1,516.29	9,191.78
Energy	232.27	397.60	288.01	230.81	228.65	1,377.34
Commerce	31.40	38.50	36.30	36.50	36.60	179.30
Community Facilities and Social Welfare	822.94	1,025.55	1,103.35	1,102.20	1,156.10	5,210.14
Public Health	233.36	339.47	373.72	416.55	438.06	1,801.16
Education	893.83	1,080.30	1,103.50	1,169.50	1,253.30	5,530.43
Unallocated						
Regional Development Fund	70.00	75.00	75.00	85.00	95.00	400.00
Accelerated Rural Development Fund	150.00	150.00	200.00	250.00	250.00	1,000.00
Development Fund for Remote Areas	35.00	40.00	45.00	50.00	50.00	220.00
Development Fund for Selected Areas	10.00	10.00	20.00	20.00	20.00	80.00
Counterpart Funds	250.00	300.00	300.00	350.00	400.00	1,600.00
Total	6,088.83	7,274.75	7,445.12	7,349.58	7,421.64	35,579.92

Development Financing

7. The sources of financing for the development expenditures of the Plan are 41,920 million baht from domestic sources, or 73% of the total, and 15,600 million baht from external sources (including a foreign exchange loan from the Bank of Thailand), as presented in Table 4.

Table 4

Financing of Second Plan Development Expenditures

(millions of baht)

	Estimated Actual Expenditure 1961 - 66	%	Planned Expenditure 1967 - 71	%
1. **Domestic Sources**				
Revenue Surplus[1]	8,540	30.0 %	10,000	17.4 %
Self-Financing by State Enterprises & Local Governments	4,540	16.0 %	6,345	11.0 %
Domestic Borrowing Sources:				
Commercial Banks, Government Saving Bank, and the Public	5,900	20.9 %	15,000	26.1 %
Bank of Thailand	3,100	11.0 %	4,000	7.0 %
Foreign Exchange Reserves	400	1.4 %	3,000	5.2 %
Treasury Balances[2]	- 1,500	- 5.3 %	3,575	6.2 %
Sub-total	20,940	74.3 %	41,920	72.9 %
2. **Foreign Sources**				
Loans	4,840	17.2 %	10,600[3]	18.4 %
Grants	2,400	8.5 %	5,000	8.7 %
Sub-total	7,240	25.7 %	15,500	27.1 %
3. Grand Total	28,180	100.0 %	57,520	100.0 %
4. Less Estimated Shortfalls	-	-	7,520	13,0 %
5. Estimated Actual Development expenditure	-	-	50,000	87.0 %

[1] Revenue surplus is the surplus of total government revenues over non-development expenditures; see Table 5.

[2] Calculated as a residual and refers only to changing balances associated with government budgetary operations.

[3] Including foreign exchange loans from the Bank of Thailand.

8. Government Revenues and Surplus : During the First Plan period the average annual growth rate of government revenues was about 11%, thus permitting the Government to finance about 30.7% of total development expenditures from its own revenues. Table 5 indicates that, excluding tax change total government revenues for the Second Plan period are expected to be ฿ 84,000 million or an average increase of 11.6% annually. In order to finance the marked increase in development expenditures without creating inflationary pressures, the Government will have to increase its tax revenues. It is estimated that adjustments in the tax structure and rates can raise revenues by 3,000 million baht, without interfering with private investment plans or inequitably burdening any group in the society. Deducting non-development expenditures of 77,000 million baht from total revenues leaves 10,000 million baht as revenue surplus, about 17% of total development expenditures.

Table 5

Government Revenues & Surplus during the Second Plan

(millions of baht)

	1967	1968	1969	1970	1971	Total
Government Revenues						
1) Taxation	12,500	13,940	15,726	17,631	19,707	79,504
Existing tax structure and rates	12,500	13,723	15,106	16,662	18,422	76,413
Estimated increase in revenues from tax changes	-	217	620	969	1,285	3,091
2) Sales of Goods & Services	305	320	335	351	365	1,676
3) State Enterprise Contributions	432	453	476	499	523	2,383
4) Other Sources	840	687	763	619	528	3,437
Total	14,077	15,400	17,300	19,100	21,123	87,000
Minus Non-Development Expenditures	12,600	14,300	15,300	16,700	18,100	77,000
Revenue Surplus	1,477	1,100	2,000	2,400	3,023	10,000

9. Self-Financing by State Enterprises and Local Government - The resources which the state enterprises and local government units have available,

after deducting expenses, for development purposes are an important source of financing the Plan. Self-financed development expenditures of the state enterprises will equal 4,045 million baht and of the local governments 2,300 million baht.

10. Domestic Borrowings: The total domestic borrowing of 2,200 million baht for the next five years will be obtained from the following sources:

(i) Commercial Banks - The commercial banks have been growing rapidly, buoyed by the expansion of the economy, and it is expected that they will be able to purchase government bonds and treasury bills in the net amount of 10,000 million baht.

(ii) Government Savings Bank and the Public - The Government Savings Bank has attracted growing deposits in recent years by offering a higher interest rate and this will permit it to purchase 4,000 million baht of government bonds during the Plan period. The high and tax free interest income from government securities is expected to attract the public and other private institutional investors who are expected to purchase 1,000 million baht during the Plan period.

(iii) Bank of Thailand - Financing from the Bank of Thailand can be divided into two categories:

a. Local Currency Borrowing - The magnitude of baht borrowing will be restricted to 800 million baht annually, which is considered a reasonably conservative limit of non-inflationary financing

b. Borrowings from the foreign exchange reserves will total 3,000 million baht, excluding foreign exchange loans from the Bank of Thailand for particularly high priority development projects. The foreign exchange reserves will be used for financing foreign currency expenditures in development projects in order to avoid the expansionary effect on the money supply of local currency borrowing.

11. Treasury Balances - The Government will draw down the treasury balances by 3,600 million baht during the Plan period.

External Sources of Finance -

12. The rapid increase in domestic expenditures requires the Government to depend quite heavily on external financing. The foreign financing planned for the period 1967 - 1971 equals 15,600 million baht, and is composed of the following:

13. Foreign Loans - The 10,607 million baht of foreign loans are mainly for the development of infrastructure. In order to reduce the shortfalls of foreign loan, the government has emphasized on diversification of the sources of finance and insisted on international bidding. The Government will negotiate loans mainly from international financial institutions such as the World Bank and from countries of the Consultative Group for Thailand. The sources of external finance for the First Plan mostly came from West Germany and the World Bank. At the same time the Government will draw on its foreign exchange reserves to finance development projects by means of loans from the Bank of Thailand, which will be made in accordance with terms and conditions laid down by the Bank.

Table 6

Second Plan Foreign Loans by Sector

(millions of baht)

Sectors	1967	1968	1969	1970	1971	Total 1967-1971
Agriculture	192	301	567	566	361	1,987
Transport and Communications	886	1,012	1,072	618	550	4,138
Energy[1]	393	381	570	628	287	2,259
Community Facilities & Social Welfare	15	221	477	467	466	1,646
Education[2]	36	157	134	119	131	577
Total	1,522	2,072	2,820	2,398	1,795	10,607

[1] Including foreign exchange loans of 208 million baht from the Bank of Thailand.

[2] Including foreign exchange loans of 290 million baht from the Bank of Thailand.

Since transport and communications are essential for the development of other sectors, the Government will continue its emphasis on this sector, much of which will be financed by foreign sources. Foreign loans for the Agriculture Sector of about 1,987 million baht are mainly for the development of water resources. The Energy Sector requires about 2,259 million baht of foreign loans (including foreign exchange loans from the Bank of Thailand) for expanding power generating and distribution capacity. Foreign financing for the Community Facilities and Social Welfare Sector will concentrate mainly on the survey and construction of a drainage and sewerage system in Bangkok-Thonburi, the improvement of water supply systems, and housing development for low income groups. Foreign loans for the Education Sector will finance improvements in vocational education and the increase in comprehensive high schools.

14. During the course of the Second Plan, it is estimated that foreign debt services of the government and state enterprises will be about 4,900 million baht. The outstanding foreign public debt will total around 13,900 million baht or 10% of GDP by the end of 1971. Debt services of the gov government and state enterprises will be about 1,000 million baht or 4.0% of foreign exchange earning in 1971 while debt services of the private sector will be around 4% of foreign exchange earnings. The debt service burden is within the capacity of the economy, considering its present strength, expanding exports and prospects for continuing rapid growth.

15. Foreign Grants - Total foreign grants are expected to increase from 2,400 million baht under the First Plan to 5,000 million baht under the Second Plan. The major contributor is the United States which will emphasize the Accelerated Rural Development Programme in the Northeast and North, feeder road construction in the South, and strategic highways in the Northeast. The United Nations Special Fund and the Colombo Plan countries and countries which are members of the Consultative Group for Thailand will provide assistance. Non-project grants for development proposes such as fellowships will amount to about 250 million baht. Out of the total grants of 5,000 million baht, 1,900 million baht will be for projects initiated during the First Plan and the remainder will be for new projects.

16. The financing strain is expected to be partially alleviated by shortfalls in the rate of Plan development expenditures. On the basis of past

experience and project analysis these shortfalls are estimated at 10% for development budget expenditures, 20% for foreign loans and grants, and 15% for self-financed expenditures.

Private Capital Formation

17. Private investment is larger and more significant than public investment, for a free enterprise economy such as Thailand depends upon private production to serve as the engine of progress. During the First Plan private investment was 67,500 million baht, 15.5% of Gross Domestic Product, compared to public investment of 25,000 million baht or 5.8% of Gross Domestic Product.

18. During the Second Plan, private investment is expected to increase at an annual rate of 8.7%, rising to a cumulative total of 92,800 million baht or 16.6% of Gross Domestic Product by 1971. This contrasts with the planned public investment which is expected to increase at a 10.8% annual growth rate and equal 37,900 million baht or 6.7% of Gross Domestic Product in 1971. This is so since the private investment is calculated as a residual. However, the private investment policy for this Plan period by no means deviates from the policy during the First Plan. The Government will pursue its policy of private investment promotion as far as it is practicable, since this is a key to modernization. However, this projected annual growth rate of private investment is rather on the low side. The Government will therefore encourage private investment so as to obtain a higher rate as long as it will not interfere with the economic and financial stability. The government will also consider, if necessary, applying any measures to reduce its expenditures or increase its revenues in order to activate private investment. Therefore both estimated figures may be alter depending on the development policy which will be constantly reviewed during the course of the Plan period.

19. Private capital formation between 1967 - 1971 is expected to generate from the sources shown in Table 7.

Table 7

Sources of Private Capital Formation

During the Second Plan Period

		(millions of baht)
Self-financed by the Private Sector		73,800
Foreign Sources		10,000
Financial Institutions		9,000
Commercial Banks	7,100	
Insurance Companies	150	
Industrial Finance Corporation of Thailand	400	
Housing Banks	250	
Loans from the Small Industry Loan Office	100	
Bank for Agriculture Cooperatives	500	
Stock Market	500	
Total		92,800

20. The non-banking private sector is expected to generate internal funds to finance 73,800 million baht or 79.5% of the total private capital formation. Private foreign capital inflow will consist of 5,000 million baht for direct foreign investment and 5,000 million baht in the form of credits. Domestic financial institutions will provide about 9,000 million baht of investment funds, in the form of loans, over-drafts and discounts of certain categories of commercial papers.

21. The dynamic private growth of the past six years has been accompanied by a rapid expansion in the number of financial institutions which contribute to the financing of the private sector. The private commercial banks have competitively improved their services and opened new branches in Bangkok-Thon Buri and the provinces. The Government has contributed by establishing the Small Industry Loan Office and the Bank for Agriculture Cooperatives, as well as improving the Housing Bank and the Industrial Finance Corporation of Thailand.

22. During the Second Plan period the Government will continue its policy to encourage the development of the capital market so that is can generate more savings in the private sector. The Government will promote the establishment of specialized financial institutions so as to diversify the types and increase the number of financial intermediaries and to lengthen the process by which funds can be channeled from the savers to the ultimate users. This strategy will reduce the existing reliance upon the unorganized money market which has so for been the major source of finance for the private sector.

Policies for Commercial Banks

23. The Commercial banks are the most significant establishments in Thailand for generating savings and supplying investment funds. During the Plan period, they will provide 7,100 million baht for private capital formation. The Government has the following development strategy for the commercial banks:

(i) The number of banking establishments increased from 384 in 1961 to 488 by 1966, thus benefiting the rural areas where many of the branches were opened and diversifying the sources of savings. The Government will encourage the commercial banks to expand their services into additional localities in order to further diversify and expand the sources of credit.

(ii) Present regulations prevent the commercial banks from accepting saving deposits or time deposits for periods longer than one year. This inconveniences savers and impedes the ability of the commercial banks to make long-term loans for capital projects. The Government will therefore try to create conditions which will permit the acceptance of long-term deposits and encourage medium and long-term loans to industrialists and entrepreneurs.

(iii) The commercial banks currently play only a minor role in extending agricultural credit. The Government will take measures to encourage the commercial banks to discount bills for primary commodities.

(iv) The Government will adopt new measures to increase the capacity of the Bank of Thailand to give credit to the commercial banks.

(v) The commercial banks generally require collateral of real property in the form of land deeds for their loans and this severely restricts their lending capacity. The Government will revise the commercial law so that certain types of personal property, such as machinery and equipment, will also be acceptable as collateral.

(vi) Since the commercial banks are the most experienced institutions in the investment field, they will be encouraged to provide advice on long-term investments and the development of a capital market.

(vii) The Government will attempt to channel the loan funds of the commercial banks into investments which will contribute to economic development.

Policies for Other Financial Institutions

24. Other financial institutions have generally been ineffective in mobilizing savings for investment purposes. For instance, measures will be taken to promote the life insurance business, which in spite of its great potential will only contribute about 150 million baht to private capital formation during the Plan period. Specialized institutions, such as saving and Loan Associations and Mutual Funds, will be established to broaden the capital market.

25. Agricultural Credit - The Government recently established the Bank for Agriculture Copperatives for the purpose of providing the farmers with agricultural credit for productive purposes. During the Second Plan, 50 additional branches will be opened and the Government will design measures to encourage the present banking system, including the Bank of Thailand, to provide capital for the new bank. The Bank for Agriculture Cooperatives will make loans directly to the farmers and through cooperative societies at a subsidized interest rate. Its lending operations will be closely coordinated with other Plan programmes to raise productivity in the agricultural sector.

26. Financing of Housing Construction - From 1961 to 1965 the Housing Bank lent about 50 million baht for the purchase of land and for housing construction. During the Second Plan the Government will establish a Housing and Urban Development Agency with the Housing Bank constituting a part of the new organization. It is expected that the Housing Bank will be able to provide loans of about 50 million baht annually. The Government will also consider providing other financial assistance for the promotion and expansion of the private construction industry.

27. Industrial Finance - In addition to the private commercial banks and life insurance companies there are two specialized sources of industrial finance - the Industrial Finance Corporation of Thailand (IFCT) and the Small Industry Loan Office. The loan provided by these two institutions were limited during the First Plan to 17 million baht a year by the IFCT and about 9 million baht by the Small Industry Loan Office. During the Second Plan it is expected that the IFCT will lend about 80 million baht per year and the Loan Office will finance about 20 million baht per year of industrial investment. The Government is encouraging those two institutions to expand their programmes in cooperation with the other government agencies concerned with industrial promotion and to seek capital funds from the money market.

28. Capital Market Policy - The capital market is currently not significant in providing investment funds and for the years 1966-1971 only about 500 million baht is expected to raised through the Stock Exchange. Obstacles include the lack of specialized financial institutions, absence of confidence concerning management controls, and the method of buying and selling securities. The number of securities passing through the public market is small because private corporations restrict equity sales to insiders in order to retain control. The Government will promote the development of the capital market by encouraging the establishment of intermediary financial institutions like investment bankers and brokers. They will be able to purchase securities and resell them to the organized stock market. This will require close cooperation between the commercial banks and financial intermediaries to increase the liquidity of bonds and securities and facilitate the healthy growth of the capital market in Thailand.

Balance of Payments

29. During the First Plan period Thailand's balance of payments was in favourable position. The foreign exchange reserves increased about 1,700 million baht annually. At the end of September 1966, the reserves stood at 17,000 million baht or equivalent to about 10 months imports. The growth of exports accelerated markedly during the First Plan with an average annual rate of 8.1%. The export earnings during this period totalled 67,365 million baht. But imports also

rose rapidly to 85,363 million baht or an increase of 10.1% annually. The explanation for the strong upsurge of imports was the rapid increase of investment requiring capital imports. Consequently the balance of trade indicated a deficit of approximately 18,000 million baht. However, this was partly offset by the improvement of Thailand's net surplus on invisibles of 7,092 million baht. Rapid growth in the tourist industry and rapidly rising United States military expenditures were the main reasons for this surplus. When the net transfer payments of 10,149 million baht are added the current account deficit is reduced to only 757 million baht. Moreover, net capital inflow accelerated so that Thailand was able to offset substantially the current account deficit and thus increase reserves by 10,535 million bahtas shown in Table 8 below.

Table 8

Balance of Payments during the First and Second Plan Periods

(millions of baht)

	First Plan Estimated Actual 1961-1966	Second Plan 1/ Projected 1967-1971
1. Merchandise: 1/		
Exports	67,365	84,015
Imports	85,363	116,424
Trade balance	- 17,998	- 32,409
2. Services (net) 1/	7,092	18,159
3. Transfer Payments (net)		
Private	806	925
Official	9,343	5,266
Current Account	- 757	- 8,059
4. Capital Movements (net)		
Private	5,287	7,916
Official	3,398	5,268
Net Errors and Omissions	2,607	-
5. International Reserves Movements	10,535	5,125

1/ Projected at 1965 constant prices.

30. During the Second Plan period export earnings at 1965 constant prices are projected to be 84,015 million baht or equivalent to an annual increase of about 8.1%, as compared to 67,365 million baht during the First Plan. Imports are estimated to be 116,424 million baht out of which 44,646 million baht will be for capital goods. The annual growth rate of imports will be 9.3% as compared to about 10.1% for the First Plan period. The decline in the growth rate of imports may be affected by the expected level of United States military expenditures in Thailand.

31. The trade deficit will amount to 32,409 million baht. However, this deficit will be offset by the net earnings on invisibles and transfer payments as was true in the First Plan. The tourist industry is expected to develop even more rapidly. But the main cause will be an increase of United States military expenditures. Altogether the current account deficit will stand at 8,059 million baht.

32. Adding the net receipt of capital, both private and public, of about 13,184 million baht results in an increase in foreign exchange reserves of 5,125 million baht. The rapid increase of foreign capital inflows is due to the larger amounts of loans and grants expected in the public sector, more private borrowing from abroad as well as an increase in foreign investment in Thailand

33. Rapid increases in the net invisibles and capital movement are the reasons for the substantial accumulation of foreign exchange reserves. These occurences may be only temporary, especially the United States military expenditures which is an exogenous factor and depends heavily upon international situation.

Fiscal & Monetary Policy for the Second Plan

34. The Second Plan budget expenditures (both current and development) are substantially higher than double the level of the First Plan. This is far above the likely availability of public resources that can be raised domestically; the proposed expenditure level, after deducting projected government revenues, shows a deficit of about 25,600 million baht. The government will therefore have to increase its borrowings from the Bank of Thailand and its use of treasury balances. This will accentuate the inflationary pressure created by the

accumulation of foreign exchange reserves. If the planned public expenditures are made and the foreign exchange reserves increase as expected, the rate of increase of private consumption and investment may have to be reduced so that limited available resources can be transferred to the public development programme.

35. Nevertheless, the public expenditures and the balance of payment are projected figures and actual situation may differ due to the following reasons:

(i) There may be underspending by the government agencies, as occurred during the First Plan, due to their inability to implement projects in accordance with schedules. During the First Plan, this phenomenon obviated the need to borrow from the Bank of Thailand and on the contrary, treasury balances increased. Private investment was unrostrained in its forward momentum.

(ii) The international situation in Southeast Asia may improve, thus reducting the accumulation of foreign exchange caused by the spending of foreign millitary personnel stationed in Thailand. This would tend to alleviate the inflationary pressure.

36. On the other hand, if the international crisis becomes more serious, the Government will have to divert increased resources into defence and internal security. Continuing the Plan's programme to expand economic activities would create inflationary pressures. The Government would therefore be faced with the choice between

(i) reducing development expenditures and/or

(ii) increasing government revenues.

A more efficient tax administration and the imposition of new taxes is unavoidable if the government is to pursue its policy of economic development and simultaneously maintain the internal security and integrity of the Kingdom.

37. In order to alleviate the inflationary pressure caused by the increase in money supply and limited domestic resources, the Government is considering a policy of import liberalization. Import restrictions such as quotas and tariffs may be eased for certain types of merchandise which are in short supply and the prices of which are rising.

38. The Government will attempt to maintain financial stability and will avoid domestic borrowings which will create inflation. It is expected that the projected target of revenue from taxation will be realized or surpassed by more efficient collection, better measures to prevent tax evasion, and adjustments in the tax structure and rates.

39. The Government will consider the terms and sources of external finance carefully so that the foreign loan or grant is appropriate for the characteristics of the particular development project and to avoid future balance of payments difficulties. The Bank of Thailand will make foreign exchange loans for particularly high priority projects.

40. Since the estimates of revenues, expenditures and balance of payments are only approximate, and subject to alteration with changing circumstances, the agencies which are responsible for the country's fiscal and monetary policy, such as the Ministry of Finance, the Bank of Thailand, the Budget Bureau and the National Economic Development Board will cooperate closely in order to assess evolving financial and economic trends. These agencies will revise fiscal and monetary policies year by year in accordance with the requirements of the changing economic situation.

CHAPTER VI

MANPOWER AND EMPLOYMENT

Manpower and Its Relationship to Economic and Social Development

1. The manpower resources of Thailand are one of its most valuable economic assets. The pace of economic growth in a country is largely determined by the quality and quantity of its labour force. It is vitally important, therefore, that the country's manpower be developed along with the stock of physical capital.

2. In addition to its economic importance, the development of manpower in Thailand has social, political and cultural significance. All these dimensions of manpower development are important and none can be neglected. They assume special significance in the context of the Second Plan which entails social as well as economic development.

3. Another key aspect of the manpower situation in Thailand is the efficient utilization of trained and educated people, not only to achieve the Plan targets, but also to minimize unemployment and underemployment in the economy. This becomes particularly necessary as rapid population growth is resulting in more and more new entrants to the labour market for whom employment must be provided. The surplus manpower must be absorbed in gainful employment and the skill level raised through programmes of education and training.

4. Experience from the First Plan indicated that manpower demand and supply imbalances were creating critical bottlenecks obstructing the smooth expansion and growth of Thailand's economy. This was particularly true in several of the professional, technical and skilled occupational categories. The present Plan therefore attempts to deal with the problem by formulating suitable policies and programmes for effective manpower development and utilization.

Employment, Unemployment and Underemployment

5. The estimated size of the labour force in 1966 is approximately 15 million persons, or roughly 45 % of the total population

of 33 million people. This labour force participation rate includes substantial participation by women; in fact, nearly 42 % of the female population are in the labour force. The size and distribution of the labour force by economic sector in 1961 and 1966 are shown in Table 1.

Table 1

Distribution of the Labour Force by Sector : 1961 and 1966

Economic Sector*	F.Y. 1961		F.Y. 1966	
	Employment (in millions)	% of Total	Employment (in millions)	% of Total
Agriculture, Forestry Hunting and Fishing	10.34	83.1	11.62	79.9
Mining & Quarrying	0.03	0.2	0.04	0.3
Manufacturing	0.45	3.6	0.69	4.7
Construction	0.07	0.6	0.11	0.7
Electricity, Gas, Water & Sanitary Services	0.02	0.2	0.03	0.2
Commerce	0.74	5.9	1.03	7.1
Transport, Storage & Communication	0.16	1.3	0.23	1.6
Services	0.64	5.1	0.80	5.5
Total	12.45	100.0	14.55	100.0

Note : The labour force refers to economically active population 15 years of age and over.

6. Table 1 shows that roughly 80% of the employed labour force is engaged in agriculture, forestry, hunting and fishing. This percentage is particularly high in Thailand considering its level of development. In addition, data on output per employee show that the agricultural sector has the lowest labour productivity when compared with other sectors. This will necessitate serious efforts for developing the

* This classification is in accordance with the International Standard Industrial Classification of all Economic Activities (United Nations, 1958)

productivity of the agricultural labour force. The distribution of Thailand's labour force by occupation is presented in Table 2 below.

Table 2

Employment by Major Occupational Groups in Thailand : 1961 and 1966

Occupational Group*	F.Y. 1961		F.Y. 1966	
	Persons Employed (in millions)	% of Total	Persons Employed (in millions)	% of Total
Professional, technical and related workers	0.17	1.4	0.20	1.4
Administrative, executive and Managerial workers	0.03	0.2	0.07	0.5
Clerical workers	0.15	1.2	0.19	1.3
Sales workers	0.63	5.1	0.99	6.8
Farmers, fishermen, hunters, loggers and related workers	10.34	83.1	11.62	79.9
Miners, quarrymen and related workers	0.03	0.2	0.03	0.2
Workers in transportation and comunication occupations	0.14	1.1	0.22	1.5
Craftsmen, production process workers and laborers	0.70	5.6	0.91	6.3
Service, sport and recreation workers	0.26	2.1	0.32	2.1
Total	12.45	100.0	14.55	100.0

7. Table 2 indicates that the majority of workers in Thailand are classified in the occupational group, Farmers, fisherman, hunters, loggers, and related workers. Another 13 % are craftsmen and production workers or salesworkers. There are relatively few persons (only about 2 %) in the professional, technical and administrative categories. This high-level manpower shortage appears to be a serious shortcoming for the

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* This classification is in accordance with the International Standard Classifications of Occupations (I.L.O., 1958)

country's long-term development. It is also noteworthy that there are more women than men occupied in professional, technical, and related activities in municipal areas. This fact gives evidence of the important role played by women in Thailand's labour force.

8. Due to the absence of detailed statistical data, it is rather difficult to determine the exact nature of unemployment and underemployment in Thailand. For the country as a whole, combining municipal and non-municipal areas, the unemployment rate is estimated to be about 1 % in terms of persons actively seeking employment. The unemployment rate in the municipal areas is roughly as follows : 2 - 3 % actively looking for work and 5 - 6 % thinking of looking for work.

9. While visible unemployment in Thailand is not at present a serious problem, lwo-productivity underemployment appears to be a rather serious obstacle that must be overcome. Underemployment is taken to mean employment that is not adequate in terms of the period of work; that is relatively unproductive; or that provides abnormally low earnings. Underemployment is found to be most prevalent in agriculture, but there is evidence that this problem also exists in the commerce and the service sectors in the municipal areas. A preliminary analysis indicates that underemployment is quite extensive for certain categories of workers, particularly the selfemployed persons.

10. It is very difficult to measure the nature and extent of underemployment and disguised unemployment in agriculture. This is because there are no adequate, nation-wide statistics on the seasonal fluctuations in agricultural employment, on labour productivity, or on the production effects of withdrawing labour from agriculture. However, it is generally agreed that labour productivity in the rural areas is quite low, even though Thai farmers spend long hours working in the fields during the planting and harvesting seasons as well as during the off-seasons. These persons are not unemployed, but are employed at relatively low levels of productivity.

Employment Trends and Manpower Shortages

11. In the process of economic development the employment

trend in Thailand shows that the trade, commerce, and service sectors are growing rapidly in relation to other sectors. The agricultural labour force continues to represent a declining percentage of the total labour force. So far, manufacturing activity is primarily small-scale and is composed of firms that are ancillary to agriculture, such as rice, flour, sugar, jute, and saw mills. In recent years, however, there has been a growing diversification of manufacturing activity, which is exerting an increasing demand for professional, technical, and skilled workers. The demand for such personnel is further accentuated by an increase in the number of construction, transportation & communication projects during the Plan period. Also the development of educational and medical services has stepped up the demand for professional personnel. As a consequence, there are serious shortages in the professional and technical manpower categories. The most important shortages are in the following categories : physicians, nurses, economists, agronomists, administrators and executives, engineers, professors and teachers.

12. In the middle-level, skilled worker category, the shortages appear to be as critical as they are at the professional and technical levels. Shortages are already evident in the supply of well-trained, skilled mechanics, electricians, carpenters, welders, surveyors and foremen of all types.

Population and Labour Force Growth

13. During the Plan period, the population of Thailand is expected to increase by 6 millions; correspondingly, the labour force comprising persons aged 15 years and over will increase by 2.3 millions. The projections of population and the labour force are given below;

Table 3

Population and Labour Force in Thailand during the Second Pland Period

(in millions)

	1967*	1971*	Increase 1967-71	annnual percentage increase
Total population	33.2	39.2	6.0	3.3%

	1967*	1971*	Increase 1967-71	Annual percentage increase
Population aged 15 years and over	18.0	21.3	3.3	3.4%
Labour Force aged 15 years and over	14.8	17.1	2.3	2.9%

* The figures relate to the beginning and end of the Five year plan.

14. The future size of the labour force is estimated on the assumption that the labour force participation rates during 1967 - 71 will be slightly lower than those observed in the 1960 Census. The estimate takes into consideration the major programmes of educational expansion for young persons as well as earlier retirement of older persons.

15. The labour force growth during the Plan period, estimated at 2.3 millions, represents the net addition of persons to the labour market for whom employment opportunities must be adequately provided. Actually, 3.3 million persons will be joining the labour market during the Plan period while an estimated 1.0 million persons will be leaving owing to death, retirement, and other reasons. Out of 3.3 million persons likely to join the labour market during the Plan period, 3.0 millions will be rural dwellers and the remaining 0.3 million urban dwellers. However, these figures must be considered as preliminary estimates as a continuous flow of persons migrating from rural to urban areas is anticipated. This results in an extensive degree of labour mobility or internal migration in Thailand. Most of the movement is over short distances to neighboring provinces and much is temporary in nature. While such labour mobility is desirable from the economic point of view, at present in Thailand it is generally unplanned. There is a great need for more employment exchanges and better occupational outlook information to cope with this problem of labour mobility.

16. Considering the age composition of persons seeking work, the problem of finding jobs for young workers assumes great significance and will require special attention during the Plan. It is also evident from

the labour force surveys in Thailand that the incidence of unemployment in urban areas is the highest among young persons. Nearly 5 to 6 % of the labour force aged 15 - 24 years are actively seeking work as compared with 2 - 3 % of the labour force as a whole. The situation is similar in rural areas, where for lack of year-round employment opportunities young persons migrate to urban areas in search of work. In order to improve the overall employment situation, therefore, it will be necessary to find an adequate number of jobs to absorb the new entrants, in addition to providing new jobs for those who are unemployed and better jobs for those who are underemployed.

Manpower and Employment Objectives

17. Manpower planning must be closely integrated with economic development planning at all stages since the human element constitutes not only an important factor of production but also a major force in economic growth. The Second Plan attaches considerable importance to manpower planning and therefore includes effective development and more efficient utilization of manpower as one of its principal goals. In order to achieve this goal, there are three objectives:

(i) to generate employment opportunities equivalent to the increase in the labour force;

(ii) to promote employment in rural areas with a view to relieving underemployment; and

(iii) to improve the quality of human resources through education, training and upgrading of skills so as to meet present and future manpower requirements.

18. The first objective, generation of adequate employment to absorb the increasing labour force, will most probably be met during the Plan period. The second objective of raising low productivity and relieving underemployment among the rural labour force will take more time and cannot be fully achieved during the five years covered by the Plan. Nonetheless, appropriate steps will be seriously undertaken to deal with this problem. The third objective, overall human resources development, will be the principal aspect of the Second Plan which will lay the foundation for the

improvement of knowledge and skills, based on a continuous appraisal of future manpower needs.

19. The Second Plan has initiated several programmes to achieve the objectives outlined above. These include employment generation, rural employment promotion, and improved development and utilization of manpower. The programmes and their expected impact on Thailand's employment and manpower situation are examined below.

20. Employment Generation : Since an immediate objective of the Plan is to create adequate employment oppertunities for the growing labour force, the employment potential of the Plan must be examined by considering past trends in employment, labour productivity, employment-investment norms, and other indicators consistent with the anticipated increase in Gross Domestic Product over the Plan period. For the purpose of calculating the employment potential of the Plan, it has been assumed that labour productivity will increase at 2.5% per annum in agriculture, 3.0 % in Commerce and Services and 3.5 % in Manufacturing and other activities. The resulting employment potential of the Plan is shown below.

Table 4

Employment Potential of the Second Plan

Economic Sector	F.Y. 1967		F.Y. 1971		Increase in employment (millions)
	Employment (millions)	% of Total	Employment (millions)	% of Total	
Agriculture, Forestry, Hunting and Fishing	11.62	79.9%	12.68	75.6%	1.06
Mining & Quarrying	0.04	0.3	0.05	0.3	0.01
Manufacturing	0.69	4.7	0.98	5.8	0.29
Construction	0.11	0.7	0.16	1.0	0.05
Electricity, Gas, Water & Sanitary Services	0.03	0.2	0.06	0.4	0.03
Commerce	1.03	7.1	1.37	8.2	0.34
Transport, Storage & Communication	0.23	1.6	0.32	1.9	0.09
Services	0.80	5.5	1.14	6.8	0.34
Total	14.55	100.0%	16.76	100.0%	2.21

21. Table 4 shows that the Second Plan target is to provide new jobs for about 2.2 million persons. Forty-eight percent of that total number will be generated in the agricultural sector while the remaining 52 % will be generated in the non-agricultural sector. It appears that the employment potential of the Plan (2.2 million) is almost equivalent to the increase in the labour force of 2.3 million during the Plan period. The difference constitutes an allowance for a small amount of frictional unemployment of 0.1 million persons which is inevitable in the process of rapid economic and social development. The extent to which the above targets are realized will depend on the successful achievement of the economic growth envisaged and on the specific measures adopted to stimulate employment.

22. One measure is to promote economic activities capable of using labour-intensive production techniques, particularly with respect to construction activities in the rural areas and the small scale industries. In addition, attempts must be made to ensure fuller utilization of industrial capacity. Another measure is to provide for a better organization of the employment market through the development and expansion of employment service.

23. Rural Employment Promotion : Since agricultural operations are seasonal in character, it is quite common for some agricultural workers to leave their villages in the slack seasons and migrate to urban areas in search of work, while those who stay on in the villages spend their time on low productivity work. This problem assumes special significance in Thailand where over three-fourths of the agricultural workers are primarily engaged in rice production which is of a highly seasonal nature. Appropriate measures to deal with this problem include the provision of assistance for cultivation during the dry season through irrigation and promotion of supplementary work through the development of cottage industries, handicrafts or other gainful activities. Employment in rural construction projects is an important activity that could be promoted and encouraged. Furthermore, limited pilot projects will be organized in certain rural districts to relieve underemployment and to raise the low productivity of workers engaged in agriculture or other pursuits.

24. Manpower Development : Human resources development must be closely related to the manpower requirements of the present and future plans of economic development so that appropriately trained manpower will be available in occupations which are crucial to economic and social development. It is therefore essential that the manpower demands stimulated by the Plan be carefully estimated and manpower supply be planned in advance.

Manpower Requirements

25. A detailed estimate has been made of the manpower requirements during the Plan period in various non-agricultural activities.

Table 5

Additional Manpower Requirements During the Second Plan Period

(Manpower in Non-agricultural Activities)

Occupational group	Manpower Requirements
Professional, technical and related workers	111,700
Administrative, executive and managerial workers	44,500
Clerical workers	92,700
Sales workers	455,300
Miners, quarrymen and related workers	14,300
Workers in transport and communication occupations	114,800
Craftsmen, production process workers and laborers	529,800
Service, sport and recreation workers	171,400
Total	1,534,500

26. Table 5 indicates that the total requirement for manpower in non-agricultural activities during the Plan period is about 1.5 million persons. This is 0.3 million greater than the 1.2 million employment level increase in non-agriculture envisaged in the Plan as given in Table 4. The difference of 0.3 million accounts for the replacement of manpower losses due to death and retirement, modernization, and current manpower shortages.

27. With regard to the supply of high-level manpower, the anticipated output of university graduates in each faculty has been calculated for the Plan period. It is expected that the total supply of university graduates will be about 31,600. Of these, 12,600 will be graduates from social Sciences; 7,000 from Education; 3,560 from Medicine, Pharmacy and related Sciences; 2,900 from Humanities and Fine Arts; 1,930 from Agriculture, Foresty & Fisheries; 1,890 from Engineering; and 1,700 from Science. In the category of middle-level manpower, it is anticipated that the number of graduates of grades 13 and 15 from the vocational and technical schools will reach 75,000. This will consist of 37,000 in building and engineering trades and 38,000 in non-engineering trades such as agriculture, home economics and commerce. These estimates include the anticipated expansion in the output of education and training institutions likely to result from the Plan programmes.

Table 6

Manpower Requirements and Supply of Trained Personnel During the Second Plan Period

Personnel trained in	Manpower Requirements	Supply	Anticipated Shortage
Agriculture & Animal Husbandry	2,200	1,450	750
Forestry & Fisheries	900	480	420
Agriculture (Vocational School Level)	7,500	7,500	-
Medical Sciences	2,250	1,350	900
Nursing	6,000	4,000	2,000
Engineering	2,200	1,890	310
Engineering Trades (Vocational School Level)	45,000	35,000	10,000
Teacher Training	49,000	39,000	10,000
Science	3,300	1,700	1,600

28. It can be seen from Table 6 above that shortages of different categories of trained personnel are likely to arise during the

Plan period. It is therefore necessary to further expand and improve university level education as well as vocational training particularly in the fields where there are urgent needs.

Manpower Development Programmes

29. The relationship between supply of and demand for manpower in the various fields mentioned underscores the importance of manpower development through education and training. With regard to education, the Educational Development Plan incorporates many projects. The major training programmes are examined below.

30. Training of Professional and Managerial Personnel: In addition to academic training provided at the universities, the need to organize practical training for the development of different types of manpower is becoming recognized. The Thailand Management Development and Productivity Centre, which was started in 1962 with the assistance of the ILO under the UN Development Programme is training managerial personnel at all levels in the use of effective management methods in order to raise industrial productivity. So far, over 3,000 managerial personnel from 383 organizations in both the public and the private sectors have benefited from the courses provided by the Centre. During the Second Plan period, the activities of the Centre will be expanded to provide training for about 5,000 managerial personnel.

31. Training of Administrative Personnel : Since the Second Plan requires a large number of qualified administrative personnel to staff projects in different sectors, the quality of administrative and executive personnel working in the government departments and public enterprises must be raised. One method is to select officers from various Ministries for training abroad in their respective fields of specialization. According to the estimates received from government departments, about 10,000 officers will require training abroad during the Second Plan period. Of these, 2,400 will specialize in Social Sciences, 1,960 in Agriculture, 1,500 in Education, 1,360 in Engineering and 1,290 in Medicine.

32. Training of Skilled Craftsmen : The biggest manpower gap concerns skilled craftsmen who are required in large numbers in construction

and engineering trades to cope with the rapid expansion envisaged by the Plan. An insufficient supply of skilled personnel may have an upward impact on wages and prices and obstruct the achievement of Plan targets. Shortages of qualified manpower may not always be evident since available jobs are not kept vacant but are filled by less qualified hands, a situation which is not favorable to increases in productivity and output.

33. In order to meet the shortages of skilled craftsmen, the Plan has initiated certain special projects in the fields of Vocational Education and Vocational Training. The Vocational Education Project which has been sponsored with the assistance of the World Bank loan will provide for expansion of 14 industrial trade schools, Theves Vocational Teacher College, 9 Vocational agricultural schools, and Bang-Pra Agricultural Techer Training Center. As far as the industrial trade schools are concerned, it is expected that the project will lead to an annual output of 2,100 skilled persons in the following trades : auto mechanics, building construction, electricity, machine shop and metal work, and radio and television servicing. Other programmes of the Project will result in an annual output of 250 teachers from the Vocational Teachers College and 1,250 middle-level personnel from the agricultural schools.

34. With regard to Vocational Training, a Project to improve the skills of industrial workers has been proposed and an Institute for Industrial Skill Promotion will be set up in Bangkok. This Project aims to raise the level of skills and related knowledge of workers in order to enable them to perform their tasks in a more efficient manner. The Institute for Industrial Skill Promotion will also train instructors who will be available to industry for the training of apprentices. It is hoped that this step will help to increase industrial productivity through the promotion of skills of industrial workers. An apprenticeship training programme is also proposed to provide the vocational school graduates and new entrants to the labour market with practical training necessary to make them full-fledged skilled workers. The apprenticeship programme will be organized with the cooperation of industry to suit their manpower requirements and to meet the expanding needs of the economy.

Manpower Studies and Surveys

35. Proper planning for manpower development to be consistent with changing circumstances requires a continuous survey and assessment of needs. In this connection relevant statistical data and information concerning population growth, the size and composition of the labour force and productivity trends must be taken into consideration. It is proposed to set up a Manpower Advisory Council consisting of representatives of the government and of the private sector to give policy recommendations to the Government regarding such matters as employment creation, manpower development and utilization, and organization of vocational training in relation to the manpower requirements of the country.

Labour Policy

36. The manual labour force is and will become an even more important component of the country's manpower resources. This is because Thailand is in the process of developing the industrial as well as trade and services sectors. The conditions of work and welfare of manual workers must be regulated carefully by the government with a view to attaining fairness, equity and cordial labour relations between employers and employees. During the Plan period, major programmes to promote the welfare of workers in all categories will be implemented. Appropriate measures such as employment exchange services, labour protection, labour relations and upgrading of skills will be undertaken to provide more income and security for the workers. The most important aspect of labour policy concerns wages and incentives. Since the level of wages paid to unskilled workers is somewhat low in certain part of the country, a rational wage policy will be put into effect. Another aspect relates to the migration of workers from rural to urban areas which will assume a larger dimension in the future as the availability of land for cultivation is relatively limited. A substantial proportion of the population will, therefore, find it necessary to migrate permanently to urban areas. Even the number of persons who migrate on a temporary basis will not be small. Necessary measures to deal with these problems and to prevent undesirable social

effects will, therefore, require attention. Agricultural labour, which constitutes the bulk of the labour force, will be given priority in labour policy and legislation. Legal protection will be extended to migrant workers seeking seasonal employment in agriculture, and training of agricultural workers will be encouraged to develop technical skills necessary for the transition from manual to mechanical farming.

37. In implementing these various programmes, special efforts will be made to encourage closer communication and understanding between employers and employees and to seek the views of all those who contribute to the economic development of the country. This will involve, among other things, intensive training of the government officials who will deal with labour problems and the organization of courses for employers and workers to enable their fuller participation in the economic development projects of the Plan.

Long-Term Manpower Perspective

38. Projection of Population and Labour Force : The rate of growth of Thailand's labour force and the demand for manpower will be dependent on the size and rate of growth of the population as a whole. At the present time Thailand is experiencing a population growth rate of 3.3% per year, which is very high. Table 7 presents the long-term population and labour force projections. These projections are based on two sets of assumptions. Projection I is based on the assumption that the birth rate in Thailand will continue at the present high level, while Projection II assumes that, as a result of efforts to reduce the birt rate, it would begin to decline from 1970 onwards. In both cases, the mortality rate is assumed to decline moderately. These assumptions will result in population growth at the rate of 3.4 % during 1967-71 and 3.5 % during 1972-76 and 1977-81 in Projection I; and a corresponding growth rate of 3.3, 3.0 and 2.8 in Projection II. The overall estimates of the population and the labour force, based on the foregoing assumptions, are shown in Table 7 below.

Table 7

Long-Term Population and Labour Force Projections

No. of Persons (in millions)	Projection	Year (F.Y.)			
		1967	1971	1976	1981
Total Population	I	33.2	39.3	46.6	55.9
	II	33.2	39.2	45.1	51.2
Population Aged 15 Years and Over	I & II	18.0	21.3	25.2	29.8
Labour Force Aged 15 Years and Over	I & II	14.8	17.1	20.2	23.8
Increase in the Labour Force in the 5-Year Interval	I & II	-	2.3	3.1	3.6

39. Table 7 shows that the total population will be 55.9 million in Projection I, and 51.2 million in Projection II by the year 1981. However this difference would not affect the size of the population aged 15 years and over or the labour force; the difference in the size of total population will become significant only after 1981. In the meantime, the net addition to the labour force will increase from Plan to Plan--2.3 million during 1967-71, 3.1 million during 1971-76 and 3.6 million during 1976-81. These figures are based on the assumption that the labour force participation rate among population aged 15 years and over will decline from 82.2 % in 1967 to 80.3 % in 1971 but will thereafter remain constant at 80.0 % until 1981. The above projection implies that the plans of economic and social development during the next 15 years must generate 9 million new jobs to absorb the additions to the labour force.

40. The projected long-range trends in employment by economic sector and by occupation are as follows. First, it is anticipated that the proportion of the total labour force engaged in agriculture will decline

gradually from 80% in 1967 to 70% by 1981. On the other hand Manufacturing, Commerce and Services will grow relatively rapidly in terms of employment. Secondly the changing pattern of economic development and the employment trends noted above will affect the demand for manpower in various occupations in the long run. For example, it is expected that the percentage of professional, technical, and managerial manpower will increase as the demand grows for higher level skills in the more complex economy. Similarly the demand of skilled craftsman and sales personnel will rise as industrial expansion and marketing of economic products expands. These are some evidences of the effect of the changing structure of the Thai economy on employment in various activities and occupations.

CHAPTER VII

REGIONAL AND LOCAL DEVELOPMENT

1. In the course of Thailand's economic and social development, a very important aspect is the improvement and progress of each region and local community. The progress of the less developed regions will be reflected in the welfare of the whole country. The Government recognizes the need for a special plan of development for the economically backward areas, so that effective measures can be taken during the next 5 years. The Five Year Plan, therefore, includes regional and local development programmes as one of its major components.

2. Planning for regional and local development will embrace the following five activities:

(i) Regional development planning will be conducted by five regional Development Committees which are responsible for regional development policy and various budgetary appropriations.

(ii) Local development planning is the responsibility of the provincial administrative agencies, municipalities, and sanitary districts.

(iii) The Accelerated Rural Development Programme is designed to concentrate and intensify development activities in selected provinces of the Northeast and North which are susceptible to communist subversion.

(iv) The development of remote areas where lack of communication facilities is a major problem will be facilitated by special projects for this purpose.

(v) Specific area development planning will be implemented in special area programmes, such as already initiated for the Pasak River area and Sattahip.

Regional Development Planning

3. In accordance with the Government's policy regarding regional development, five Regional Development Committees have been set up. These Committees cover 61 provinces, and their general functions are:

(i) Acting as the Government's representatives in the course of regional development activities assigned to each Committee.

(ii) Establishing policy and courses of action for the respective region in coordination with the overall development plan.

(iii) Obtaining special funds in addition to the budget appropriations, both in the form of subsidies and Government Departmental expenditures. Thes special funds constitute only a minor fraction of the whole regional development budget, but their use for special grogrammes in each individual province can be very significant.

4. At present the Regional Development Committees consist of the following:

(i) Northern Development Committee: responsible for 16 provinces from southern Uthai Thani to northern Chiang Rai.

(ii) Northeastern Development Committee: covering 15 provinces from Nakhon Ratchasima to the eastern border.

(iii) Southern Development Committee: administering 14 provinces from Chumphon down to the Malaysian border.

(iv) Eastern Development Committee: covering 8 provinces, from Samut Prakan to Trat.

(v) Western Development Committee: responsible for 8 provinces from Samut Sakhon to Northern Suphan Buri and Southern Prachuap Khiri Khan.

At present, there is no special Regional Development Committee for the central 8 provinces (excluding Bangkok and Thon Buri) in the Chao Phraya River valley since they already receive benefits in irrigation and agriculture from the Chao Phraya River Valley Development Programme. However, a special committee for these remaining provinces may be set up in the future.

Regional Development Policy

5. Northern Region Development Policy: The major part of the Northern Region is highland and dense forest area. Agricultural land is scarce and, because of the rapid expansion in population growth, only 9.6 rai per family is now available. The Northern Region Development Policy,

therefore, will attempt to increase agricultural production to provide a sufficient standard of living, maximum use of available natural resources, and development of remote areas such as those settled by the hilltribes.

6. Northeastern Region Development Policy: The Northeast is the largest but poorest region of the country. Its population comprises nearly one-third of the whole, but the average per capita income of Northeasterners is only one-half of the national average. The aim of the Northeastern Development Policy, therefore, is to raise the standard of living as quickly as possible through various development programmes. Scarce natural resources and inferior topographic conditions necessitate such projects as potable water supply, communications and power. Furthermore, subversive activities and infiltration in this part of the country make the policy for Northeastern Development a matter of top priority.

7. Southern Region Development: The topographic and economic conditions of this area, especially the Southern border provinces, differ considerably from those of other region. Even though this area was formerly neglected, the Government is presently attempting to see that the South is developed along with the other regions. The policy for this region stresses social development, particularly education. On the economic side, programmes are being set up for highway improvement, self-help communities, and replacement of present rubber trees with new high yielding varieties. Furthermore, fishing and mining will be encouraged, and programmes for improvement and construction of seaports are underway.

8. Eastern Region Development Policy: Another area of importance to the national economic system is the eastern region, which can be extensively developed, especially in coastal commerce and industry. In the northern border areas where poverty and hardship still persist, the policy will emphasize improvements in communication.

9. Western Region Development Policy: This area is plentiful in natural resources such as land, forests, and water supply. Therefore, the policy objective is the more effective use of these natural resources, especially water sources to encourage future agricultural activities.

Regional Development Projects

10. Primary Industry Development Project: Rural highways and small irrigation projects are most in demand, especially in the remote areas. Regional Development Committees have established various highway construction budgets and acquired construction machinery for many provinces. Provision for preliminary surveys and design of bigger projects are being arranged, and the main financing will come from the central budget.

11. City and Town Development Project: The Regional Development Committees recongnize the importance of establishing appropriate regional centros for economic and administrative purposes. The selected provinces are: Khon Kaen in the Northeast, Tak in the North, and Pattani in the South. The necessary budget for town planning and expansion will be appropriated in the course of the next 5 years.

12. Social Development Project: Activities in the fields of social work, self-help communities, construction of health stations and primary schools will be promoted. Furthermore, the Committees will try to convey national policy to the public and to regional government officials and to determine the public's needs in order to promote a better understanding between the Government and the People.

13. The financial support of the Regional Development Programme is not limited to the budget of the Regional Committees but is also based on central Government budget allocations in such fields as road construction and establishment of universities. The Regional Committees will not be involved in such budget allocations any more than they are at present, but will be in close cooperation with the regional government offices.

Special Regional Development Budget

14. During the Plan period, a special budget of 400 million baht for regional development projects will be included in the central budget, but the main portion of regional development expenditures will be financed through the general budget. Projects which are regional in nature, but which use central budget funds, can benefit not only the provinces of that region but also contiguous provinces as well. For example, irrigation

and power projects can have a beneficial effect on surrounding areas. The details of the special regional development budget are presented in Table 1.

Table 1

Special Regional Development Budget for the Second Plan

(millions of baht)

Year Region	1967	1968	1969	1970	1971	Total
North	20	20	20	25	25	110
Northeast	20	20	20	25	25	110
South	10	15	15	15	15	70
East	10	10	10	10	15	55
West	10	10	10	10	15	55
Total	70	75	75	85	95	400

Local Development

15. The present local administrative body in Thailand consists of 71 provincial administrative agencies, 120 municipalities, 503 sanitary districts, and 53 district administrative agencies. These local administrative bodies are governmental in nature, but are not part of the regional Government. The main function of these agencies, apart from their routine activities, is to provide public utilities and services; i.e. communication, transportation, health, education, and town development. These public services play an important role in the economic and social development of the country; therefore, the importance of the local administrative system must not be overlooked.

16. The municipalities constitute the most important category of local administration with a population 4.6 million in 1966. The rate of population growth in the municipal areas has been steadily increasing in the last two decades. The population of municipal areas represented 9.7%

of total population in 1947, 10.8% in 1952, 12.4% in 1960 and 13.9% in 1966. The major share of the municipal population lives in Bangkok and Thon Buri Municipalities. In 1947, they constituted 45% of the total municipal population; in 1952, 48%; in 1960, 52%, and in 1966, 55%. For Bangkok and Thon Buri Municipalities, the annual rate of growth has been 6.7%, compared with 5.3% for all municipalities. If population growth continues to increase at this rate, the total municipal population in 1971 will be approximately 6 million persons. Table 2 presents some of the details.

Table 2

Municipal Population : 1947 - 1971

(millions)

Year / Population	1947	1952	1960	Estimates	
				1966	1971
Total Municipal Population	1.73	2.25	3.27	4.60	6.00
Bangkok & Thon Buri	0.78	1.07	1.70	2.55	3.52
Other Municipalities	0.95	1.18	1.57	2.05	2.48
Ratio of Municipal Population to Total Population	9.7%	10.8%	12.4%	13.9%	15.3%

17. In addition to the rapidly expanding municipalities, the sanitary districts also play a significant role in local development. At present there are more than 2 million people living in the sanitary districts, and the number is gradually increasing. Areas other than municipalities and sanitary districts are considered to be under the jurisdiction of each province. There are over 50 District Administrative Agencies operating as pilot projects for the enforcement of law and order on a small scale.

18. The provision of public services is under continual pressure due to the rapidly expanding municipal population. The requirements for sufficient public utilities will be the unavoidable result of such expansion and development. Administrative agencies in the smaller communities also have a responsibility to satisfy this public need.

Local Administration Development Expenditures

First Plan

19. The Office of the National Economic Development Board has compiled and studied expenditure figures as they appear in the Local Administrative Budget. During the 1964 - 1966 period the total economic and social development expenditures for all local administrative agencies was 1,488 million baht (45% of their total expenditures). Local administration development expenditures are presented in Table 3 below.

Table 3

Local Administration Development Expenditures : 1964 - 1966

(millions of baht)

Year / Local Agency	1964	1965	1966	Total
Municipalities	303.8	382.5	409.7	1,096.0
Sanitary Districts	38.7	45.2	48.2	132.1
Provincial Administration	61.7	70.2	110.4	242.3
County Administration	6.0	6.0	6.0	6.0
Total	410.2	503.9	514.3	1,488.4

20. Approximately 60% of local development expenditures comes from local revenue; the balance is made up of Government subsidies and loans. It should be noted that about 58% of these expenditures occur in Bangkok - Thon Buri only. However, this trend is declining (i.e., from 61.6% in 1964 to 58.3% in 1966). Moreover, government subsidies for the development activities of local administrative agencies outside Bangkok - Thon Buri amounted to 60% of the total development subsidy during 1964 - 1966.

21. In the 1964 - 1966 period, an average of 56.2% of the total development expenditures by local administrative agencies was allocated to communication and transportation, 8.3% to health development, 6.4% to community improvement (Bangkok - Thon Buri), and the balance to sanitation, vocational promotion, recreation, fire prevention, commerce, waterworks,

power, and other activities (such as religious development, community development, and various social works). Local development expenditures are categorized as shown in Table 4 below.

Table 4

Local Development Expenditures

According to Types of Activity: 1964-1966

(millions of baht)

Year Type of Activity	1964	1965	1966	Total
Communication & Transportation	233.1	282.5	320.6	836.2
Health	33.1	45.7	44.6	123.4
Education	24.3	22.8	22.5	69.6
Cleanliness & Sanitation	20.2	38.3	32.6	91.1
Community Improvement	16.5	13.7	65.5	95.7
Vocational Promotion	15.3	43.5	31.1	89.9
Recreation	16.1	19.8	22.4	58.3
Fire Prevention	.9	1.1	1.0	3.0
Commerce	24.6	21.0	18.2	63.8
Waterworks & Power	19.6	9.2	4.2	33.0
Others	6.6	6.3	11.6	24.5
Total	410.3	503.9	574.3	1,483.5

Second Plan Development Expenditures

22. During the Second Economic and Social Development Plan, the total estimated local development expenditures will amount to 4,100 million baht, (or approximately 50% of total expenditures by the local administration. It is expected that these total expenditures will increase at a rate of 14% per annum, and that 1,800 million (44%) will come from Government sources. The major portion of the Government subsidy will be expended in areas outside Bangkok - Thon Buri. Table 5 shows the local development expenditures planned during the next five years, categorized as to source of fund.

Table 5

Sources of Local Development Financing During the Second Plan

(millions of baht)

Source \ Year	1967	1968	1969	1970	1971	Total
National Budget	280.0	335.0	365.0	395.0	425.0	1,800.0
Bangkok - Thon Buri	117.0	132.0	143.0	155.0	168.0	715.0
Others	163.0	178.0	197.0	215.0	232.0	985.0
Reserves for new projects	-	25.0	25.0	25.0	25.0	100.0
Local Revenue Sources	320.0	380.0	450.0	530.0	620.0	2,300.0
Bangkok - Thon Buri	235.0	276.0	313.0	360.0	411.0	1,595.0
Others	85.0	104.0	137.0	170.0	209.0	705.0
Total	600.0	715.0	815.0	925.0	1,045.4	4,100.0
Summary						
Bangkok - Thon Buri	352.0	408.0	456.0	515.0	519.0	2,310.0
Others	248.0	282.0	334.0	385.0	441.0	1,690.0
Reserves for new projects	-	25.0	25.0	25.0	25.0	100.0

23. The past allocation of development expenditures reveals that the amount expended in Bangkok - Thon Buri is becoming lower compared to the amount spent in other areas. This is due to the Government's effort to decentralize economic advantages. Expenditures for Bangkok - Thon Buri during the first two years of the Second Plan will increase slightly due to urgent community improvement needs, especially road construction and garbage disposal. However, expenditures in the metropolitan area will gradually decrease during the last three years of the Plan. Table 6 shows the percentage of expenditures in Bangkok - Thon Buri and other areas (reserves are excluded).

Table 6

Second Plan Local Administration Development Expenditure Ratios for Bangkok - Thon Buri and Others

Year	Bangkok and Thon Buri	Others	Total
1967	58.6%	41.4%	100.0%
1968	59.2	40.8	100.0
1969	57.7	42.3	100.0
1970	57.3	42.7	100.0
1971	56.8	43.2	100.0
1967 - 1971	57.9%	42.1%	100.0%

24. During the Second Plan period, expenditures on communication and transportation will be the most significant. However, when the bulk of road construction and maintenance work is completed, expenditures in this category will decrease slightly, and other development activities will gain in significance: i.e., community improvement, sanitation, and waste disposal. Table 7 shows the percentage distribution of development expenditures by type of economic activity.

Table 7

Distribution of Local Administration Development Expenditures by Type of Activity during the Second Plan

Type of Activity	Percentage Distribution
Communication & Transportation	50.0%
Health	8.0
Education	5.0
Sanitation	9.5

Type of Activity	Percentage Distribution
Community Improvement, Recreation, and Fire Prevention	17.5
Vocational Promotion	6.0
Commerce	2.5
Waterworks & Power	1.5
Total	100.0%

25. The estimated local development expenditures include purely local activities, not those fostered by the central Government. Therefore, they do not include Bangkok - Thon Buri drainage and sewerage construction expenditures, Government housing projects, or the transfer of primary schools to the provincial administrative agencies. Various new projects of the local administration which are to be financed by Government loans and subsidies are included in the reserve budget.

Local Development Problems

26. At present, the local administrative agencies face many problems which obstruct more complete and effective operations. These problems concern revenue, planning and administration, and local-government relationships.

27. As the local administrative agencies (especially the municipalities) take on more of the burden of public services, Government subsidies are required. During the past five years, total municipal expenditures increased at an average of 25% per annum, but revenue increased at only 15% per annum. **Consequently** government subsidies had to be increased 28% per annum. However, the sources of revenue are not completely equitable, for a major portion comes from distributed government taxes. Actually, the municipalities should exercise more power in revenue collection, to make people realize that they also take part in municipal administration. Furthermore, existing revenue from taxation is still below requirements. This can be remedied by granting the municipalities a broader revenue-collecting power, new or increased taxation, duties, etc.. Improved tax evaluation is recommended, and special

taxes should be levied upon individuals benefitting from public projects.

28. Careful planning can lead to effective use of resources. However, local administration in Thailand still lacks adequate planning capability, Even-though the Bangkok and Thon Buri Municipalities have made advances in this direction, imperfections still persist. Furthermore, local budget formulation usually neglects long-term needs. To eliminate such flaws, the Ministry of Interior should promote local planning in each province.

29. In principle, each local agency should have sufficient freedom to exercise appropriate administrative power. This will permit the municipalities to increase their tax collecting power, even though government subsidies will still be needed. Subsidies can be used to the Government's advantage to ensure harmonious local activities. The local administration agencies should regularly publish financial reports for both Government and public use.

30. Due to the lack of adequate funds, facilities, and technicians, the administrative agencies have to depend on central Government cooperation to achieve local development objectives. To remedy this situation the Governors or local administrators should be encouraged to manage their operations more efficiently according to definite plans or programmes.

Accelerated Rural Development (ARD)

31. The general standard of living of the farmers, who constitute a majority of Thailand's population, is quite low compared to that of urban inhabitants, whose economic and social progress has been more rapid. Past evidence indicates that only a small fraction of development benefits have reached the rural regions; and remote border areas have been particularly neglected. The present Government realizes the importance and necessity of accelerated rural development to improve the rural standard of living and accelerate progress and national security.

32. The ARD Project includes all the border provinces (11 in the Northeast and 3 in the North) from Udon Thani to Chiang Mai. The southern border will be added to the Project during the Plan period.

This Project aims at reaching these selected provinces, counties and villages at the fastest possible rate and with the most effective economic results. A major political objective is to increase the development potential in the remote areas and prevent subversion and infiltration. The Government policy underlying this Project is as follows:

(i) To Coordinate and combine relevant groups concerned at every level to assure effective results and to expedite local development activities by providing communication, transportation and potable water.

(ii) To strengthen ties with the people, so that plans and operations will be responsive to their actual wants and needs. The principle of public participation should be applied at all times, and maintenance of completed projects should be emphasized.

(iii) To encourage the provincial administrative agencies to work closely with concerned Government agencies for the betterment of rural inhabitants.

Accelerated Rural Development Projects

33. As part of the ARD Programme, the Government will implement the following Rural Economics Projects:

(i) Rural Roads Project will concentrate on building access roads leading to remote areas, eventually to be followed by permanent roads. These roads will provide convenient, all-year-round communication between rural and urban areas, and also between different local communities.

(ii) Village Development Project will provide machinery for land-levelling, clearing, construction, and public works to accelerate development at the village level.

(iii) Distribution of Land and Water Supply Project will assist villagers in their economic activities, primarily agriculture, and help raise their incomes. Necessary steps will be taken by the Provincial Administrative Agencies and relevant Government officials to promote a base for a viable system of business and commerce.

(iv) Project for Business and Agriculture will set up unions of agriculturists at the provincial level to operate as economic institutions rendering services to their members, and acting as coordinators between farmers and the Government and private enterprises. Technical and financial assistance will be channeled through these unions, as well as new agricultural plans, land reform, irrigation, and product distribution. At the same time, commercial banks and private firms will be urged to participate in the development of these agricultural unions.

34. The Government will also implement the following Social and Public Utilities Projects under the ARD Programme:

(i) Medical and Health Project will attempt to recruit additional doctors and nurses from Central Government Departments to work in rural areas. Additional mobile medical units will be sent out to ARD provinces to support local personnel and medical facilities. Each mobile unit will be assigned to a specific area, and its function will be to train local people in basic nursing and health practices.

(ii) Potable Water Supply Project will foster cooperation with Provincial Administrative Agencies to provide rural inhabitants with sufficient potable water from existing water sources (rivers, ponds, swamps, reservoirs, and rain water). Deep-well drilling is also under consideration. All these projects must be undertaken in cooperation with concerned government Departments, such as Health, Mineral Resources, Irrigation, and the Provincial Administrative Agency.

(iii) Social and Cultural Activities will be designed to develop more knowledge and understanding of national customs and culture among rural inhabitants. This project will be undertaken by the Provincial Administrative Agency.

Accelerated Rural Development Budget

35. Development funds to be used in the Accelerated Rural Development Project come from the following sources: relevant Government Departments, the ARD Office, provincial counterpart funds, and foreign assistance. Funds from relevant government departments and the provincial counterpart constitute only a small portion of their development budgets. The budget of the ARD office is expected to be 1,000 million baht during the Plan period. The expected foreign assistance also amounts to 1,000

million baht which will be distributed (in million of baht) during the five-year period as follows:

1967	1968	1969	1970	1971	Total
150	150	200	250	250	1,000

Remote Area Development

36. To supplement the Accelerated Rural Development Programme and to open up remote and border areas, the Government will institute special projects for the development of remote areas.

37. Mobile Development Unit Project: This is an economic and social development project under the Defence Ministry. The responsible Government Departments are the Central Security Division, Communist Suppression Headquarters, and Civic Action groups of various military forces. These mobile units are equipped with technical staff from different fields to move into remote areas and assist the inhabitants with their most urgent needs, i.e.potable water supply, access road construction, medical and health activities, and education. During this Plan period, the mobile units will operate along the northern border, and in the northeastern, eastern, and southern provinces, using funds received from the Defence Ministry and U.S. assistance.

38. Remote Area Development Project: This is a special project for accelerating the development of the southern part of the Northeast and the East. The selected areas will be those which are remote and poverty-stricken, and which have political and social problems. The major facets of this project are small irrigation and rural road construction, which will cost an estimated 5 million baht annually.

39. Hill Tribes Development Project: The Council of Ministers has appointed a special Committee for Hill Tribes Development. In the past, financial support came from the Public Welfare Department Budget, but the Hill Tribes Development Pudget will be increased during the Plan period in order to accelerate development activities. The major projects concern business and marketing promotion and the construction of roads to hill tribes villages.

Specific Area Development

40. Pasak River Area Development: The Government has received a development loan from the U.S. to construct the Saraburi - Lom Sak Highway which will connect the central region, the Northeast, and the North by joining the Lom Sak - Loei, Lom Sak - Chumphae, Lom Lak - Phitsanulok highways. To comply with the contract conditions and to initiate an effective Pasak River Area Development Scheme, the Council of Ministers has approved this project which will aim at irrigation, rural road construction, and agricultural development in the Saraburi, Lop Buri and Phetchabun provinces. The estimated operating budget will be 10 million baht per annum.

41. Sattahip Development Project: The eastern coast of Thailand, from Si Racha to Rayong, presents good prospects for development as a sea-port and industrial centre. Furthermore, it has notable strategic importance. Assistance to be received from the U.S. will be in the form of survey work and overall development planning.

42. Thai-Israel Rural Development Project: Assistance has been received from Israel to start rural development activities in the area from the lower Phetchaburi Dam Project to Tung Pran, Tung Samroiyod, and the Tung Kui Irrigation Area (included in the Pran Dam Project). Pilot programmes in agriculture, village development, and land classification will be conducted in Phetchaburi Province during the Plan period. Special emphasis will be laid on crops such as oranges, cotton, and vegetables. The estimated 12 million baht budget to be used during the Plan period is to be administered by the Ministry of National Development.

Regional and Local Development Budget

43. In addition to normal budgetary appropriations and foreign assistance, the regional and local development budget financed by the Central Government budget and special subsidies is summarized in Table 8.

Table 8

Second Plan Regional and Local Development Budget Summary

(millions of baht)

Type of Budget / Year	1967	1968	1969	1970	1971	Total
Regional Development Fund	70	75	75	85	95	400
Government Subsidies for Local Administration Development	280	335	365	395	425	1,800
Accelerated Rural Development Fund	150	150	200	250	250	1,000
Remote Area Development Fund	35	40	45	50	50	220
Specific Area Development Fund	10	10	20	20	20	80
Total	545	610	705	800	840	3,500

CHAPTER VIII

STATE ENTERPRISES

1. State enterprises, firms in which the Government holds more than 50 % of the equity capital, number 108, with total capital of 9,000 million baht. The state enterprises play an important role in the economic development of many sectors of the economy. Large scale enterprises are responsible for providing public utilities, such as electricity, waterworks, telephone, railways and ports. The Lottery Bureau and the Tobacco Monopoly are large revenue earners for the Government. The Tourist Organization, the Express Transport Organization and the Transportation Company are important factors in the service sector. In addition, many other state enterprises contribute significantly toward the economic and social development of the country. During the Second Plan period 9,800 million baht or 17 % of the Government's entire development expenditures will be allocated for development purposes to the state enterprises. The main source of financing will be the state enterprises' own earnings, which will account for about 4,000 million baht or 41 % of the total. The government budget will contribute about 2,000 million baht and foreign loans and grants will account for 3,800 million baht.

2. During the First National Economic Development Plan, the state enterprises have successfully expanded the output of the public utilities and relatively decreased the significance of the industrial and commercial state enterprises, in accordance with the Government's policy to promote and encourage the development of the private sector. Some progress was realized in improving the efficiency in production, marketing, and general management of the state enterprises. During the period, 1961 - 1966, the planned development expenditures of the state enterprises amounted to more than 8,000 million baht.

Policies

3. In the Second Economic and Social Development Plan, Government policies on state enterprises are as follows:

(i) The Government will operate only those state enterprises which are considered public utilities, which contribute to Government revenue, or which are essential to the security of the nation. The Government will not establish new state enterprises, except those which will be of unquestionable benefit to the public and will not conflict with the policy of promoting private enterprise.

(ii) A programme will be instituted to improve the operational and managerial efficiency of those state enterprises which the Government will continue to operate.

(iii) Investment projects for the expansion of state enterprises will be subject to careful consideration so that no projects will be undertaken unless they are economically feasible and will not compete with nor be detrimental to private enterprise.

Programmes

4. To implement these policies, the following programmes will be undertaken:

(i) Improvements will be made in the management and the efficiency of the state enterprises, especially in the public utility field.

(ii) With regard to the establishment of new state enterprises, controlling criteria will be that such an action must not be contrary to the laws concerning the promotion of private investment nor the declared Government policies on the appropriate functions of state enterprises. Efforts will be made to assure that proposed enterprises can make valuable contributions to the economic and social development of the country.

(iii) Where industrial or commercial investments are judged to be of pressing importance and crucial benefit to the country, the Government may encourage private investment by offering government equity participation. In such cases, the extent of the Government's participation will be less than 50 % of the companies' equity capital to avoid their becoming state enterprises under Government control. When such companies have grown beyond the formative stage, the Government will withdraw its equity interest and leave them entirely in the hands of the private sector.

(iv) Government agencies which are concerned with the administration and control of state enterprises will make studies to determine the *raison d'etre* of the existing state enterprises, particularly those engaged in industrial and commercial activities. On the basis of these studies, decisions will be made as to the closure, disposal, or continuation of the state enterprises in question.

(v) Changes will be made in the regulations controlling the investment expenditures of the state enterprises, so that their investments will conform more closely with the stated policies of the Government. Revisions will also be made in those regulations and control procedures which deter efficient and flexible management decision-making in the state enterprises.

(vi) State enterprises will be encouraged to finance their investments from their own earnings. However, for those projects which require heavy investment and whose financial returns are unattractive, the Government will consider giving assistance in the form of outright grants or loans from domestic or foreign sources, if warranted by the national social and economic benefits to be derived.

Development Expenditures of the State Enterprises

5. Investment expenditures of the state enterprises consist of Development Expenditures, consisting of investment in development projects, and Non-development expenditures, consisting of investment in other fixed assets either for expansion or replacement. During the Second Plan period, state enterprises are expected to earn 42,549 million baht in gross revenue. Deducting 34,236 million baht of estimated operating expenses, total net income from operations will be 8,313 million baht. Assuming depreciation charges of 3,408 million baht, net cash inflows will amount to 11,721 million baht, of which 4,046 million baht will be allocated to Development Expenditures, 3,368 million baht will be contributed to the Ministry of Finance, 1,849 million baht will be used for debt amortization, and the remaining 2,458 will be allocated to Non-development expenditures and various reserve funds. See Table 1 - 3 for details.

Agricultural Sector

6. The state enterprises which are involved in agricultural activities are operated to assist the farmers on technical and marketing matters. These enterprises are the Rubber Estate Organization, Office of the Rubber Estate

Assistance, Forest Industry Organization, and Fish Marketing Organization. The Rubber Estate Assistance office maintains a revolving fund collected from the rubber export cess, which is used to finance the replantation of rubber trees. The Forest Industry Organization is engaged in lumbering activities and granting of timber concessions; it has a monopoly on the extraction of teak and yang wood as well as in the marketing of confiscated timber and this generates substantial revenues for the government. This organization has played an important role in the development of the forest resources of the country, although it has not taken initiative in forest conservation or reforestation, which are of critical importance if the nation's forest resources are not to be depleted.

Industrial Sector

7. The policy on industrial development is to encourage the growth of private industrial activities. The existing industrial state enterprises are those which have been in operation for a considerable period of time, some of which are important revenue earners for the Government, for example the Thai Tobacco Monopoly and the Thai Plywood Company. Some state enterprises serve the needs of the military, for example, the Battery Organization, Fuel Organization, Thai Textile Organization, Tanning Organization, Glass Organization, Preserved Foods Organization, and Bangkok Docks Company. In accordance with Government policy, development expenditures in industrial state enterprises will amount to only 278 million baht, most of which will be financed from the enterprises' own earnings. There are other industrial state enterprises which have not been successfully operated due to lack of capital and other causes, and there are no compelling reasons for the Government to continue their operation. The policy is therefore to dispose of them in order to lessen the burden imposed on the government budget. The bulk of their assets is in the form of plant and machinery, which will rapidly become worthless.

Transportation and Communications

8. State enterprises in this sector operate the railway system and other transportation services, radio and television networks, and the telephone

company. They are mostly public utilities which vitally affect the livelihood of the people. Their facilities will be modernized and expanded during the Second Plan Period in order to satisfy the growing demand for their services. Consequently, most of the net income of these enterprises will be used to finance the requisite investment expenditures, leaving a relatively small amount available for contributions to the Ministry of Finance. Large scale enterprises in this sector, such as the State Railways of Thailand, are all engaged in the process of modernization and expansion. They have large development projects which require financial and technical assistance. However, these enterprises have generally had an unsatisfactory record of performance, largely due to poor management. Efficient operations of the public utilities demand management skills of the highest quality and close supervision by top management. The management of these public utilities must therefore devote more time to the operations of the enterprises and efforts must be made to secure capable personnel.

Energy

9. State enterprises in this sector are engaged in the generation and distribution of electricity. Expenditures on development projects will amount to about 4,272 million baht, of which 1,004 million baht will be financed from the enterprises' own earnings, 1,142 million baht will be financed from the Government budget, while the remaining 2,126 million baht will come from foreign loans and grants. The policy of the power enterprises is to satisfy the rapidly increasing residential and industrial demand for electricity. Furthermore, efforts will be made to lower the cost of generation and distribution so as to pass on the savings to the consumers in the form of rate reductions. The efficiency and poor service of some power utility enterprises are so low that it is not possible for them to finance their own expansion or modernization.

Commerce Sector

10. The need for commercial or trading enterprises has declined significantly during the First Plan period. This group of enterprises consists of Marketing Organization, Warehousing Organization, Refrigeration Plant and

Ice Factory Organization, and trading companies. They constitute an effective tool of the Government in its regulation and control of the nation's commerce. Owing to the enterprises' limited scope of activity and financial strength, there are no development projects in this sector during the Second Plan. However, many of the enterprises are going through a period of reorganization and improvement, so that they can serve as more effective instruments of Government policy in the future.

Social Sector

11. In addition to the above, there are state enterprises which require working capital and which are operated to promote social welfare, culture and the arts. This group consists of enterprises such as the Tourist Organization of Thailand, Classical Music and Dance Organization, and the Sports Promotion Organization. They are not financially viable and need government subsidy. Although their operations are not directly related to economic development and cannot possibly become profitable in the foreseeable future, they play a vital role in the development of the social welfare and the cultural standards of the nation. It is therefore a policy of the Government to continue to subsidize their operations.

Table 1

State Enterprises Development Expenditures and Sources and Uses of Funds - Second Plan Period

(millions of baht)

	Agriculture Sector	Industry Sector	Transportation and Communications Sector	Energy Sector	Commerce Sector	Total
Development Expenditures	465.89	278.05	4,842.24	4,272.16	-	9,858.34
Sources of Financing Development Expenditures						
1. Earnings of State Enterprises	400.00[1]	183.36	2,458.77	1,004.38	-	4,046.51
2. Government Budget	65.89	94.69	673.47	1,142.28[2]	-	1,976.33
3. Foreign Loans and Grants	-	-	1,710.00	2,125.50[3]	-	3,835.50
Total	465.89	278.05[4]	4,842.24	4,272.16	-	9,858.34
Funds from Operations						
1. Gross Revenue	2,494.80[1]	21,255.50	8,568.80	9,665.50	564.50	42,549.10
2. Operating Expenses	1,807.00	17,288.90	7,006.10	7,585.10	549.00	34,236.10
3. Net Income	687.80	3,966.60	1,562.70	2,080.40	15.50	8,313.00
4. Depreciation	212.20	587.90	1,501.70	1,102.70	3.80	3,408.30
Total	900.00	4,554.50	3,064.40	3,183.10	19.30	11,721.30

	Agriculture Sector	Industry Sector	Transportation and Communications Sector	Energy Sector	Commerce Sector	Total
Uses of Funds						
1. Development Expenditures	400.00	183.36	2,458.77	1,004.38	-	4,046.51
2. Contributions to the Ministry of Finance 5/	250.00	2,719.50	107.00	286.90	5.00	3,368.40
3. Debt Amortization	-	79.80	397.87	1,371.00	-	1,848.67
4. Non-development Expenditures and Reserves	250.00	1,571.84	100.76	520.82	14.30	2,457.72
Total	900.00	4,554.50	3,064.40	3,183.10	19.30	11,721.30

1/ Rubber Cess Fund.

2/ Includes loan from Government Budget of 210 million baht.

3/ Includes loan from the Bank of Thailand of 208 million baht.

4/ Includes Government Pharmaceutical Organization discussed in Chapter XV

5/ Coverage and classification differ from State Enterprise Contributions, Table 5, Chapter V

Table 2

Second Plan Sources of Financing of State Enterprise Development Expenditures

(millions of baht)

	Year	Earnings of State Enterprises	Government Budget	Foreign Loans and Grants	Total
Agriculture Sector	1967	80.00	19.31	-	99.31
	1968	80.00	12.60	-	92.60
	1969	80.00	21.40	-	101.40
	1970	80.00	6.48	-	86.48
	1971	80.00	6.10	-	86.10
		400.00	65.89	-	465.89
Industry Sector	1967	46.97	21.49	-	68.46
	1968	31.93	18.58	-	50.51
	1969	29.09	22.66	-	51.75
	1970	37.66	19.96	-	57.62
	1971	37.71	12.00	-	49.71
		183.36	94.69	-	278.05

	Year	Earnings of State Enterprises	Government Budget	Foreign Loans and Grants	Total
Transportation and Communications Sector	1967	739.90	112.00	337.39	1,189.29
	1968	455.99	185.77	410.83	1,052.59
	1969	420.05	196.17	544.41	1,160.63
	1970	416.90	152.83	256.07	825.80
	1971	425.93	26.70	161.30	613.93
		2,458.77	673.47	1,710.00	4,842.24
Energy Sector	1967	160.87	171.55	395.05	727.47
	1968	262.86	335.39	360.55	958.80
	1969	213.01	201.96	510.30	925.27
	1970	161.56	218.44	572.10	952.10
	1971	206.08	214.94	287.50	708.52
		1,004.38	1,142.28 1/	2,125.50 2/	4,272.16
	Total	4,046.51	1,976.33	3,835.50	9,858.34

Note: 1/ Includes Loan from Government Budget of 210 million baht

2/ Includes Foreign-currency Loan from the Bank of Thailand of 208 million baht

Table 3

Detail by State Enterprise of Self-financed Development Expenditures: Second Plan Period

(millions of baht)

	1967	1968	1969	1970	1971	Total
Agriculture Sector						
Office of the Rubber Estate Assistance	80.00	80.00	80.00	80.00	80.00	400.00
	80.00	80.00	80.00	80.00	80.00	400.00
Industry Sector						
1. Government Pharmaceutical Organization	5.00	4.28	2.00	2.00	2.00	15.78
2. Thai Plywood Co. Ltd.	1.97	1.15	1.09	1.16	1.21	6.58
3. Fuel Oil Organization	37.00	24.00	26.00	28.00	30.00	145.00
4. Glass Organization	2.50	2.50	-	6.00	4.00	15.00
5. Battery Organization	-	-	-	0.50	0.50	1.00
	46.97	31.93	29.09	37.66	37.71	183.36
Transportation and Communications						
1. State Railways of Thailand	461.83	151.20	124.90	162.70	201.10	1,101.73
2. Port Authority of Thailand	91.81	148.61	174.66	129.36	112.44	656.88
3. Express Transportation Organization	26.04	10.50	12.40	15.00	17.20	81.14
4. Telephone Organization of Thailand	152.73	124.68	86.82	87.81	72.19	524.23

	1967	1968	1969	1970	1971	Total
5. Thai Airways Co. Ltd.	-	16.00	16.27	17.03	18.00	67.30
6. Aeronautical Radio of Thailand Ltd.	2.49	-	-	-	-	2.49
7. Transport Co. Ltd.	5.00	5.00	5.00	5.00	5.00	25.00
	739.90	455.99	420.05	416.90	425.93	2,458.77
Energy Sector						
1. Yanhee Electricity Authority	118.91	246.99	208.16	152.20	197.70	923.96
2. Provincial Electricity Authority	1.73	-	0.50	-	-	2.23
3. Metropolitan Electricity Authority	38.00	15.00	4.00	9.00	8.00	74.00
4. Electricians Training Centre[1]	2.23	0.87	0.35	0.36	0.38	4.19
	160.87	262.86	213.01	161.56	206.08	1,004.38

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[1] To be financed by the Electricity Authorities' earnings through the National Energy Authority.

Chapter IX

AGRICULTURE

1. Agriculture occupies the place of pivotal importance in Thailand's economy, providing employment to 80 % of the nation's population. About one third of the Gross Domestic Product originates in the agricultural sector, consisting of agricultural crops, livestock, fisheries and forestry, and substantially more income is earned in the marketing and processing of agricultural commodities. The major exports of Thailand still remain the primary products, rice, rubber, teak, maize, kenaf, cassava, oil seeds, and other upland crops which account for 90 % of total foreign exchange earnings. Thailand's overall economic progress depends on first developing the agricultural sector in order to lay a sound basis for further development of the other sectors of the economy.

Past Performance and Future Problems

2. The generally satisfactory growth of the agricultural sector and implementation of development projects were reviewed in Chapter II. Aggregate agricultural output increased 28 % during the period of the First Plan, an average annual growth rate of about 4.7 %. However, problems persist in each area of activity and they will be briefly reviewed here.

(i) Irrigation - In spite of the rapid extension of irrigated area, the full and effective utilization of irrigation facilities has lagged due to inadequate ditches and dikes to carry water on to the farms.

(ii) Agricultural crops - The three main categories of activity, research and experimentation, pest and disease control, and agricultural services, have suffered from insufficient personnel and equipment to realize national coverage.

(iii) Fisheries - Deep-sea fishing is not yet widely practiced because of the unsuitability of the existing fishing boats and equipment, as well as inexperience and ignorance of navigation. However, the Thai fishermen have acted responsively to the Government's promotion programme and the average volume of marine products increased 25 % per year from 1960 - 1965. The Department of Fisheries has promoted fish breeding programmes in ponds and reservoir areas but the production of fresh water fish increased only about 4% during this period.

(iv) Livestock - Thai farmers traditionally have raised buffaloes and cattle for draught purposes and meat for their own consumption. The main reasons why Thailand has been unable to develop a commercial livestock industry are related to problems of nutrition and marketing. During the First Phase of the First Plan, livestock production actually decreased due to marketing difficulties, but during the Second Phase production rose as a result of the effective government programme which laid strong emphasis on promoting animal husbandry and improving the quality of livestock. Generally speaking livestock raising in Thailand has achieved a reasonable rate of growth, but inadequate market outlets and the high cost of feed deter increased production.

(v) Forestry - The Department of Forestry has only 50 patrol units to protect and control the forests; this number is completely inadequate since each unit has to operate over an area of approximately 5,264 square kilometres. Afforestation in these areas suffers from illicit and destructive felling, the control of which is another main task of the Department of Forestry. At present only about 5,000 rai of teak and 8,000 rai of other timbers are planted annually under the Afforestation Programme, due to the shortage of heavy equipment.

(vi) Land Development - The formulation of appropriate future land policy depends upon continuing programmes to develop a sound base of information about land holdings and uses in Thailand. A 25 year land classification survey was underway during the First Plan and its next phase consists of a land census and classification by soil capability. A survey of land tenure was conducted in 35 provinces and it revealed a high incidence of tenancy in some provinces of the Central Plain.

(vii) Agricultural Credit - The Cooperative Bank has served as the government's central agricultural credit institution for many years by supplying credit to the cooperatives, which relent funds to their farmer members. However, the inadequate volume of loanable funds and ineffective credit supervision prevented the Bank from satisfactorily fulfilling farmers' requirements, and the majority of farmers still depends on credit supplied by private lenders at exorbitant rates of interest. To remedy this problem the Government established the Bank for Agriculture and Cooperatives in 1966.

(viii) Agricultural Marketing - The farmers frequently receive low prices for their commodities because of the inefficiency of the marketing system and because they are taken advantage of by middlemen to whom they are indebted.

Objectives

Policy Objectives

3. The primary policy objective in the development of the Agriculture Sector is to accelerate and diversify production, to assure that the benefits of higher productivity accrue to the farmers and to promote the security and dignity of agricultural occupations. The following specific objectives are designed to realize the general sector policy objective:

(i) To improve and expand the government infrastructure projects, such as irrigation and transportation, in the rural areas.

(ii) To develop the natural agricultural resources and to utilise them efficiently to obtain the maximum long term economic benefits.

(iii) To improve and strengthen agricultural research and experimentation so as to modernise farming techniques and increase productivity.

(iv) To improve the quality and grading of agricultural products to satisfy domestic and foreign demands.

(v) To improve the land-tenure system in order to promote commercialization of agriculture while maintaining the equities of the contracting parties.

(vi) To promote agricultural institutions, such as farmer's associations, cooperatives, people's irrigation associations, and young farmers' association, so that these institutions can represent the farmers and express their interests.

(vii) To improve the marketing system of agricultural products and to strengthen the bargaining position of the farmers so that they will receive an equitable share of the final retail price of the commodities they produce.

(viii) To extend increased government services to the farmers, especially in the field of agricultural credit, price support for the principal crops, and various extension services.

Production Targets

4. The production targets for the major agricultural products shown in Table 1, are based upon successful implementation of the Plan.

Table 1

Second Plan Agricultural Production Targets

Commodity	Production Volume		Production
	1965[1]	1971	Increase
Agricultural Crops (tons)			
1. Paddy	11,200,000	13,700,000	2,500,000
2. Rubber	215,000	250,000	35,000
3. Maize	1,000,000	1,500,000	500,000
4. Kenaf	370,000	500,000	130,000
5. Cassava	2,340,000	2,500,000	160,000
6. Soy beans	33,000	50,000	17,000
7. Green beans	120,000	200,000	80,000
8. Ground nuts	121,000	185,000	64,000
9. Cotton (industrial cotton)	16,000	45,000	29,000
10. Caster beans	32,000	55,000	22,600
11. Sesame	17,400	23,000	5,600
12. Tobacco	62,800	88,000	25,200
13. Sugar cane	4,000,000	4,000,000	-
14. Coconut (whole weight)	481,000	577,000	96,000
15. Kapok	324,000	400,000	76,000
16. Sorghum	80,000	300,000	220,000
Total	18,812,600	24,373,000	5,560,400

Table 1 Continued

Commodity	Production volume		Production
	1965[1]	1971	increase
Fisheries (tons)			
1. Fresh-water fish	86,000	100,000	14,000
2. Marine fish	551,500	760,000	209,000
Total	637,500	860,000	223,000
Livestock (head)			
1. Buffaloes	410,800	550,500	139,700
2. Cattle	846,500	1,134,000	287,500
3. Swine	3,256,000	4,363,000	1,107,000
4. Poultry	93,535,000	129,366,000	32,831,000
Total	101,048,300	135,413,500	34,365,200
Forestry (cubic metres)			
1. Teak	154,000	161,000	7,000
2. Yang wood	540,200	580,000	39,800
3. Other timber	1,308,500	1,500,000	191,500
4. Firewood	1,410,000	1,684,000	274,000
5. Charcoal	656,000	717,000	61,000
Total	4,068,700	4,642,000	573,300

Note: 1/Figures for paddy and coconut are provisional.

The major agricultural products of Thailand have their own unique characteristics, problems and growth potential each of which will be briefly discussed below:

5. Rice: Rice production will be increased substantially to satisfy growing domestic and foreign demands. Increments will come from improved

productivity made possible by better control of water, application of high-yielding varieties and fertilizers, as well as the adoption of modern farming techniques. The Government will support the price for paddy in order to stabilize farmers' incomes. The Aid-to-Farmers Programme, channelled through the farmers' organizations will help rice farmers in solving their production and marketing problems by encouraging them to help themselves. This programme has three main features: increasing productivity, rice-price support, and agricultural credit.

6. Rubber: The Rubber Replanting Scheme will be accelerated and more efforts will be necessary to promote large-scale rubber plantations and the unification of small holdings. Production and processing techniques have to be improved to meet international standards and rubber research activities will also have to be strengthened in order to realize the Plan target

7. Maize and Sorghum: The improvement of quality and yield is the objective of the development programme. And sorghum production particularly is expected to increase markedly in response to market demand.

8. Kenaf: Kenaf production will be promoted in areas where water is sufficient for retting. Research and experimentation on varietal improvement and soil conditions are to be strengthened. The expansion of production depends upon foreign demand and the supply on the world market from the other producing countries.

9. Cotton: Continued research and experimentation will improve the effectiveness of the promotion programme. Extension efforts will teach the farmers better production techniques such as seed selection, insect and pest control, and improved farming practices. At the processing level, the cotton ginneries must be modernized.

10. Oil Seeds: The production of various oil bearing crops such as groundnut, soy bean, castor bean, coconut and others will increase both for export sales and domestic utilisation. A replanting scheme is necessary for the improvement of coconut production whose productivity has been declining markedly. Promotional efforts to introduce new oil bearing crops such as oil palm will be undertaken in accordance with geographic and climatic conditions.

11. Sugarcane: Sugarcane production will be confined to domestic requirements and promoted in areas close to sugar factories in order to minimize transportation costs. Research on the development of sugarcane varieties which are high yielding and resistant to insects will be emphasized.

12. Fisheries: Fishing, especially deep-sea fishing, will be increasingly promoted in order to increase production for export and domestic consumption.

13. Livestock: Special problems are the inefficient livestock marketing system, ineffective animal disease control, as well as high prices of animal feed.

14. Forestry: Production will increase rather slowly as greater emphasis is placed on the conservation of forests, watershed areas, and wildlife. Research activities will focus on forest improvement and rehabilitation, as well as forest product technilogy, and the afforestation programme will be substantially expanded.

Development Projects 1/

Irrigation and Flood Control

15. Irrigated area is expected to increase by 3.3 million rai, if the Plan projects are implemented, and this will raise total irrigated land to 15 million rai by 1971. This increase will be distributed among irrigation types as follows:

State Irrigation	2,200,500	rai
People's Irrigation	500,000	rai
30 Irrigation Tanks in the Northeast	146,000	rai
Water Use Control in the North	460,000	rai
Total	3,306,500	rai

The details of Water Resource Development Projects are shown in appendix B of this chapter. They consist of projects continuing from the first Plan and new projects to be initiated during the Second Plan. The major new projects are briefly described in the following paragraphs.

1/ See Appendix A for details of financing.

16. The Pasom Dam Project, Uttaradit: This is a multipurpose project for the Nan River Basin, which includes a dam and 7 saddle dikes to form the reservoir. Approximately 9,000 million cubic metres of water can be stored in the reservoir area with the potential for about 2.1 million rai in the Chao Phraya Basin during the dry season and providing flood control over an area of approximately 3 million rai in the Nan Basin. Furthermore, the Pasom Dam will be capable of generating power of approximately 240,000 kilowatts. The construction cost of the Pasom Dam was estimated at 1,426 million baht, of which about 500 million baht will be financed by a loan from the IBRD. Preparation for the construction was started in 1964, and full scale construction work, started in 1967 after a delay in the negotiation of a foreign loan, will be completed by 1971

17. Uttaradit and Phitsanulok Diversion Dams: This project is designed to utilize the water from the Pasom Dam for irrigating three million rai of farm land in the upper delta provinces of Uttaradit, Phitsanulok, Pichit and Nakhon Sawan. The two main canals of the Uttaradit Dam will have a total length of 260 kilometres. In addition there will be 350 kilometres of feeder canals, capable of irrigating about one million rai in the wet season and about 400,000 rai in the dry season. The Phitsanulok Dam will have two main canals, 560 kilometres in length, and 650 kilometres of feeder canals capable of irrigating about two million rai in the wet season and about 900,000 rai in the dry season. The construction work on the two dams will be started in 1969 and will be completed by 1976. The total capital cost is estimated at 2,600 million baht, of which about 780 million baht will be financed by a foreign loan.

18. The Greater Mae Klong Project: This project in the Central Plain is the second largest irrigation project after the Chao Phraya project. The first stage of the work was begun in 1964 with the construction of the dam at Tha Muang District, Kanchanaburi province, and the distribution system covering an area of one million rai, and it is expected to be completed by 1970. The second stage of the project provides for the construction of a storage dam on the Khwae Yai River at Wang Ma Sung. The dam will have a storage capacity of approximately 9,000 million cubic metres and it will mitigate the dangers of flooding in the Mae Klong Basin, as well as irrigating about 2.4 million rai

during the dry season. Construction of the second stage will last from 1970 - 1974. The total expenditure for the second stage is estimated at approximately 1,000 million baht, of which about 380 million baht will be financed by a foreign loan. The final design of the project awaits the completion of a feasibility study of a similar project in the same area.

19. The Pran Project, Prachuap Khiri Khan: This project consists of a storage dam with 300 million cubic metres storage capacity and a distribution system in the Pran, Sam Roi Yod, and Gui areas. There will be main canals both sides of the Pran River, each with a length of 82 kilometres. The combined length of the feeder canals will be 171 kilometres. In addition to irrigating about 170,000 rai throughout the year, the project will check the annual flood damage in the Pran area and help wash out the salinity of the soil in the Sam Roi Yod area. Construction will begin in 1967 and be completed by 1972. The total cost of this project is estimated at approximately 250 million baht, of which about 80 million baht is expected to be financed by a foreign loan.

20. The Kud Dam Project, Chiang Mai: This project is to construct a storage dam on the Mae Taeng River with a storage capacity of 300 million cubic metres. Its main objectives are to store the water of the Mae Taeng River so as to control the flooding of the Mae Ping River in Chiang Mai and Lamphun provinces and to irrigate about 100,000 rai. Furthermore, if necessary, the project can generate power of about 40,000 kilowatts. The cost of the dam construction, excluding the power station, is estimated at 300 million baht, of which about 120 million baht will be financed by a foreign loan

21. Storage Dams in the Northeast: There include the Nam Oon storage dam at Sakhon Nakhon, upper Chee storage dam at Chaiyaphum, upper Mun storage dam at Korat, and Nam Yang storage dam at Roi-Et. The construction of the Nam Oon dam on the Oon River, a tributary of the Songkram River, will be started in 1967. It will have a storage capacity of 475 million cubic metres and irrigation canals on both sides of the river with a combined length of approximately 116 kilometres. This project will mitigate flood damages in the Oon Basin and irrigate 160,000 rai of land during the wet season and 102,000 rai during the dry season. Construction is expected to be completed in 1971, and it will cost approximately 250 million baht, of which 60 million baht will be

a foreign loan. The Upper Chi, Upper Mun and Nam Yang projects will have flood control benefits and potential to irrigate about 500,000 rai in the Northeast. The constructions period of these three dams is from 1970 - 1975 and total costs are estimated at 800 million baht, 180 million baht of which will be financed by a foreign loan.

22. Small irrigation projects will be implemented to assist crop cultivation in the areas uncovered by the state irrigation projects. These projects will cover an additional irrigated area of approximately 500,000 rai by the end of the Plan period. In addition, 32 irrigation tanks and distribution canals will be constructed in the Northeast. To increase the effectiveness of the irrigational facilities already in existence, construction of ditches and dikes is planned over an area of 4.5 million rai in the area of such major irrigation projects as Mae Taeng, Mae Yom, Lam Pao, and greater Mae Klong. Moreover, the irrigation canals will be lined in order to prevent water seepage and erosion of the canals and to reduce maintenance costs.

Land Development

23. A land census, which will be carried out in six provinces each year, will be completed in 1980; it covers the sizes and characteristics of land holdings, as well as tenure and production patterns. A land capability survey will be initiated in the Accelerated Rural Development Programme area, and it will cover the entire country by 1988. Soil surveys will be conducted in an area of 1.5 million rai in the Chao Phraya Basin and two million rai the Nan Basin Land Development Centres, each with a coverage of over three million rai, will be set up where soil reclamation is necessary to help farmers develop marginal land. Also an Acid Soil Reclamation Centre will be established in Pathum Thani and a Saline Soil Reclamation Centre in Chachoengsao.

24. Two Soil and Water Conservation Centres will be established each year in the North and Northeast,Each centre will have 3 conservation units to improve land utilization. Land which is unsuitable for crop cultivation will be converted to pasture or grazing land. The demonstration pasture in Maha Sarakham will be expanded and others will be set up. A conservation scheme will be launched in important river basins in order to conserve watershed areas.

25. Five land development extension units will be set up annually where soil erosion and depletion are serious problems in order to diffuse information on soil and water conservation. Regional land development extension units will also be established in the Northeast at Khon Kaen in 1968, the North at Chiang Mai in 1969 and the South at Songkhla in 1971. Furthermore, three mobile extension units will be created and dispatched throughout the country for the purpose of training farmers in land development. A complete survey of land tenancy and ownership will be conducted in the Central Plain in order to obtain data and information necessary for the formulation of proper land policies. The land resettlement scheme which has been underway at Kamphaeng Phet will be completed and the Department of Land Development will provide technical advice to agencies concerned with resettlement activities.

Rubber Replanting

26. Since 1961 the Government has assisted rubber estate owners in improving their productivity by giving them funds for replanting of the old and low yielding trees with high yielding varieties. The old estates which should be replanted as soon as possible equal approximately one million rai. Up to May 1966 the Office of Rubber Replanting Aid Fund had approved the allotment of funds for the replanting to 19,725 estates covering an area of 215,319 rai, or about 21.5 % of the total area which needs replanting. However, only 14,345 estates, with an area of 158,661 rai, have been replanted so far, because it takes about two years from the date of approval to the complete replanting of the area. The sum of 148 million baht has already been alloted and 220 million baht have been committed for future payment. A total of 530 million baht will be available during the Plan period, bringing about 285,000 rai under the replanting scheme, of which 230,000 rai are expected to be actually replanted by the end of 1971. The details are shown below in Table 2.

Table 2

Rubber Replanting During the First Plan and Second Plan Targets

Item	Unit	1961-1966	1967-1971 Target	Total 1961-1971
Number of estates approved	estate	19,725	28,500	48,225
Area approved	rai	215,319	285,000	500,319
Number of estates actually replanted	estate	14,345	23,000	37,345
Area actually replanted	rai	158,661	230,000	388,661
Approved funds	million baht	369.06	530.00	899.06
Alloted funds		148.27	215.00	363.27
Committed funds		220.79	315.00	535.79

Agricultural Research and Experimentation

27. Emphasis will be placed upon the proper coordination of agricultural research and experimentation at three levels - national, regional and sub-regional. The two existing Regional Agricultural Research Centres at Khon Kaen and Chai Nat will be strenghtened so that they can effectively link the national research institutes and the sub-regional stations in the provinces. Results produced by the national research institutes will be tested by the regional research centres as to their suitability to the special conditions of the region. Experiment stations, under the regional centres, will test results in specific localities under the close supervision and advice of the regional centres.

(i) National level The Plan provides for the improvement of existing research institutes such as the Marine Biological Research Institute, the Rice Protection Centre, and the Wood Products Research Institute. Research activities will be focused on the critical problems confronting the agricultural sector, for instance, research on marine biology, conservation, storage and processing; pest and disease control; wood technology; agricultural engineering and water use; marketing methods. The establishment of new research institutes for the study of fresh water fisheries, soil fertility, and wood pulp and paper are also under consideration.

(ii) Regional level The two Regional Agricultural Research Centres will also serve as the extension training centres for their respective regions.

(iii) Sub-Regional level Emphasis will be placed on the improvement and expansion of the experiment stations scattered all over the country. In addition, five new Agriculture Stations will be set up in the Northeast and the Fishery Station at Phatthalung will be moved to a more suitable location at Yala or Pattani. The number of trial plots of rice varieties will be increased from 260 plots at present to 410 by 1971.

Agricultural Extension Services

28. In order to increase rice production for the growing local consumption and to reach the Plan export target, measures will be taken to enable the farmers to increase their productivity. The principal project is a large-scale rice farming demonstration to be operated by farmers themselves under the technical supervision of the Rice Department; it will use high yielding rice varieties, proper fertilizers, effective insecticides and pesticides. In irrigated areas, the cultivation of field crops in the paddy fields after the rice harvest will be promoted in accordance with location suitability and market demands. Upland crops with high export potential such as maize, rubber, kenaf, cassava, sorghum and various kinds of beans will be promoted. The production of crops like cotton and coconut which have growing domestic demand will also be extensively promoted. Three new Plant Disease Control Centres will be established in addition to the existing 11 centres, and Regional Agricultural Extension Offices will be set up in all regions.

Forestry

29. Forest protection activities will be strengthened by the addition of at least 100 forest protection units to patrol the vast areas of valuable forest where deforestation is a severe problem. Forest development units will be dispatched to the Northeast for the purpose of reforestation. The annual target for forest reservation is approximately 30,000 square kilometres. Intensive

forest management will be adopted in order to reach higher levels of sustained yields. Reforestation, which has so far been rather slow, will be substantially accelerated to reach the target of 15,000 rai for teak and at least 10,000 rai of other kinds of wood. The wildlife conservation programme will be continued by the establishment of at least one wildlife conservation area each year along with national parks and forest gardens. Forestry research will focus on watershed management, teak genetics, and wood technology.

Fisheries

30. The three existing marine fishery stations will be improved so that research and extension activities can be carried out more effectively. A Marine Fishery Training Centre is needed in order to provide fishermen with technical knowledge of boat and fishing gear design, navigation,and the use of modern equipment. Surveys of fishing grounds will be conducted in the Gulf of Thailand, the South China Sea and the Indian Ocean, an area of 1.2 million square kilometres, and a map of fishing grounds will be made. Fishery information services and communication facilities will be improved and expanded. Public fresh water fishing grounds will be rehabilitated and fresh water fish will be stocked in irrigation tanks, dam reservoirs and natural water storage areas. Research work in the 13 existing Fresh-water Fishery Stations will be strengthened and a Fresh-water Fishery Research Institute will be established in order to coordinate the work of the provincial stations. The brackish-water fishery programme includes improving research facilities in the two existing stations and establishing mobile extension units to render technical assistance to fishermen. Other projects include the development of fish storage and processing and a survey of the economic conditions of the fishermen.

Livestock

31. Livestock development projects are divided into three categories, veterinary and animal husbandry research and experimentation, animal disease control, and livestock promotion. Veterinary research projects consist of virological, bacteriological and serological research, whereas animal husbandry research emphasises animal feed, demonstrative grazing land and animal breeding. The eradication of dangerous diseases is the prime objective of animal disease

control, which will necessitate a substantial increase in vaccine and serum production. The livestock promotion programme will improve the quality and extend the distribution of high quality animals. The programme for castration and artificial insemination will be accelerated through the expansion of area coverage and the establishment of additional units to service the farmers. The promotion programme for each type of livestock is described as follows:

(i) Cattle and Buffaloes - Cattle and buffalo raising will be promoted in all suitable areas, especially in the Northeast. The castration and artificial insemination services will be augmented substantially in order to accelerate the distribution of animals of good breeding characteristics. Enphasis will be placed on the eradication of foot and mouth disease which has constituted a barrier to the export of cattle and other agricultural products.

(ii) Swine - The promotion of swine production will be restricted to areas where transport facilities are sufficient to make production economical. Quality improvement will be achieved by strengthening the swine breeding activities at the 130 Swine Breeding Centres in the provinces and at the Department of Livestock's Swine Breeding and Distribution Centre in Bangkok. Two Swine Production Promotion Centres will be established at locations which are suitable for swine production. The disease control programme will focus on the eradication of swine cholera and trichinosis.

(iii) Dairy Cattle - Experiments on dairy cattle production will be continued at the two existing centres at Chiang Mai and Muaklek, and technical assistance will be given to farmers interested in dairy cattle production.

(iv) Poultry - Research into the development of better breeds of chicken and extension activities will be emphasized at the Chon Buri and Surat Thani stations.

Farmers' Institutions

32. Land Cooperatives:

(i) Land Development Cooperatives - Land Development Cooperative Societies, covering a total area of 1.25 million rai, will be established to organize the farmers and train them to adopt collective methods of introducing modern water distribution, drainage, land fertilization, crop rotation, etc.

(ii) Land Settlement Cooperatives - The Plan target is to organize land settlement cooperatives of 150,000 rai in the South, 96,000 rai in the North, and 25,000 rai in the Central Plain.
The Government provides public utilities such as roads and water distribution systems, and the Department of Land Cooperative will clear up to 10 % of each land allotment.

(iii) Land Hire-Purchase and Tenant Cooperatives - The objective is to redistribute land purchased from willing landlords to tenant farmers on the basis of long-trm hire-purchase agreements. The target for such distribution is 10,000-20,000 rai annually from 1968 - 1971.

(iv) Cooperative Federations - The objective is to amalgamate single purpose cooperative societies with similar objectives into federations in order to obtain greater volume of business and expand the scope of their activities. During the Plan period six federations, each having at least 50,000 rai will be organized. They will consist of two Land Development Cooperative Federations, two Land Settlement Cooperative Federations and two Land Hire-purchase and Tenant Cooperative Federations.

33. Credit and Marketing Cooperatives:

(i) Credit Cooperatives - The Production Credit Cooperatives now in operation have proved successful in increasing farm productivity, and therefore, six additional Credit Cooperatives will be established each year during the Plan period. Also, small Credit Cooperatives, which have only 10 - 15 members in each society, will be merged together and transformed into Production Credit Cooperatives on the ratio of 200 Credit Cooperatives to one Production Credit Cooperative. Such amalgamation will increase the number of Production Credit Cooperatives by the end of 1971 to 120 with an estimated membership of 36,200 families.

(ii) Marketing Cooperatives - Ten new Rice Marketing Cooperatives will be organized during the Plan period in addition to the existing 88 Marketing Cooperatives.

34. Farmers' Organizations: Various types of farmers' organizations, such as the Rice Farmers' Groups, Agriculturists' Groups, and the 4-H Clubs (Young Farmers' Associations), will be strengthened with the Government's

support under the Aid-to-Farmers Project. The administration must be in the hands of the member farmers themselves in order to create a spirit of mutual responsibility and mutual help. To reduce the current differences between the many types of farmers' organizations, a standardization of the principles and operations of these varying organizations is definitely necessary. The Plan therefore calls for legislation to recognise these organizations as legal bodies capable of undertaking commercial activities and capable of eventual transformation into cooperative societies.

Agricultural Credit

35. The Bank for Agriculture and Cooperatives will be expanded, a larger fund for agricultural credit will be mobilized, and 52 new branches will be established during the Plan period in addition to the five branches opened in 1966, The amount of credit available to each farmer will be sufficient for an effective expansion of his production. The commercial banks are also being encouraged to participate in providing agricultural credit to supplement this government programme.

Problems and Outlook

36. The development of agriculture will continue to play a major role in the overall economic development process of Thailand well beyond the span of this Plan. The utilization of Thailand's natural resources will have to be properly planned so as to assure their optimum economic use. Conservation measures are still inadequate to prevent the exploitation of these resources by irresponsible persons. The Government must, therefore, strengthen conservation control activities by providing more budget and manpower and improving the existing laws and regulations. The Department of Forestry has been receiving an insufficient budget to implement the afforestation programme, especially the replanting and rehabilitation of severely damaged forests, and the slow rate of afforestation is less than the rate of deforestation. Although greater emphasis is being given to these activities under the Second Plan, the rate of progress is limited by the shortage of financial resources. Consequently, the Government should make available an additional fund to supplement the national budget and part of this could come from the annual revenue of the Forest Industry

Organization. The organization of community forests at the village level is suggested so the people may participate in forest protection and rehabilitation activities.

37. Future development of irrigation will emphasize the completion of the distribution systems of both existing and new projects and development outlays will steadily decrease as the construction of major projects is completed. Large annual budget grants are made for the construction of ditches and dikes, an activity which should be undertaken by farmers themselves; but due to their lack of capital and knowhow, the Government has had to assume this responsibility. A clear policy is necessary to charge the farmers who benefit from irrigation facilities of the Government in order to increase the availability of capital for the more rapid expansion of the area under irrigation. This can be accomplished by organizing People's Irrigation Associations in the areas where there are ditches and dikes projects and requiring them to pay fees for the capital and maintenance costs under a programme jointly administered by the Government and the Associations. Land Resettlement Areas should be included with every irrigation project in order to benefit greater numbers of farmers.

38. The increases in agricultural crop production will be achieved primarily from increased productivity rather than the expansion of cultivated area. The use of fertilizers and improved farming methods will be essential. The principal land policies are that tenant farmers should be given an opportunity to possess their own land and land holdings should be of an economic size. The following measures to improve land tenure are necessary:

(1) Improvement and revision of laws relating to the ownership and utilization of agricultural land.

(2) Taxation of land owned by absentee landlords.

(3) Purchase of land from land owners who are willing to sell and redistribution to landless farmers on a long-term installment basis.

39. Marine fishery, especially deep-sea fishing requires stronger support from the Government; one important need is the provision of sufficient credit facilities for the fishermen.

40. Large-scale, commercial livestock industry should be developed in the vast area of the Northeast which is well suited for livestock raising. The Government must provide support through technical and financial assistance

and a revision of the existing laws and regulations which currently bar progress.

41. The improvement of the marketing of agricultural products is a prerequisite for successful agricultural development. The development of agriculture is dependent upon the responsiveness of individual farmers and prices must be sufficiently attractive and flexible to induce them to adapt the most economic cropping patterns. A major means of agricultural marketing improvement is the promotion of farmers' collective operations in the trading of their produce to reduce dependence upon the middlemen. It is necessary for the Government to promulgate a law recognizing various types of farmers' organizations as legal bodies, thus capable of being transformed into multi-purpose cooperative societies, handling both production and trade for the benefit of Thai members. In addition, the Cooperatives Act should be revised and modified so as to facilitate such transformation.

42. The Rubber Replanting Scheme has to be accelerated substantially in order to obtain the higher production and lower costs which are necessary to compete with synthetic rubber. The committed fund now being reserved should be used for the annual expansion of replanting, and financial shortages should be met with government subsidy. Nevertheless, an agricultural diversification scheme should be launched in the South as a precautionary measure against the possible decline in the prices of rubber.

43. Agriculture is the largest sector of the economy, employing the largest portion of the population but the farmers are still poor and unable completely to help themselves. It is therefore a responsibility of the Government to render assistance and to provide the necessary basic services. As a consequence, the government administration is of vital importance. The governmental agencies responsible for the development of agriculture, especially in the field of planting and extension, have to be properly equipped with adequate and qualified personnel in order to perform their functions more efficiently.

APPENDIX A

A 1 Summary of Second Plan Development Expenditures by Financing Source - Agriculture Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget Appropriations	1,495.05	1,624.22	1,684.41	1,747.21	1,869.39	8,420.28
Foreign Loans	192.00	301.20	567.00	566.00	361.00	1,987.20
Foreign Grants	100.00	110.00	110.00	115.00	115.00	550.00
State Enterprises' Own Resources 1/	80.00	80.00	80.00	80.00	80.00	400.00
Total	1,867.05	2,115.42	2,441.41	2,508.21	2,425.39	11,357.48

1/ Rubber Cess Fund

A 2 Second Plan Development Projects Financed by Government Appropriations - Agriculture Sector

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
Government Agencies (Total)	1,475.74	1,611.62	1,663.01	1,740.73	1,863.29	8,354.39
Special Budget for Aid-to-Farmers Programme	130.00	150.00	150.00	170.00	200.00	800.00
Office of Under-Secretary (Ministry of Agriculture)	29.65	35.02	36.87	37.96	39.90	179.40
1. Agricultural Economic Research	5.48	7.00	9.00	9.00	9.00	39.48
2. Agricultural Development Centres						
2.1 Agricultural Centre in Ditches and Dikes Project Area	3.37	3.80	4.10	4.40	4.70	20.37
2.2 Regional Agricultural Research Centre, Northeast	6.37	6.80	5.80	3.90	3.90	26.77
2.3 Soil Fertility Survey and Research	4.43	4.72	4.67	6.66	7.50	27.98
2.4 Agricultural Engineering Research Centre	-	2.00	2.10	2.20	2.30	8.60
3. Agricultural Extension						
3.1 Agricultural Extension Equipment Centre	2.95	3.50	3.80	4.20	4.70	19.15
4. Agricultural Aviation Services	7.05	7.20	7.40	7.60	7.80	37.05
Department of Agriculture	73.06	83.07	94.72	104.95	115.00	470.80
1. Survey, Experimentation, and Research						
1.1 Experimentation in Agricultural Experimental Stations	11.55	12.00	12.80	13.60	14.40	64.35

Government Agency Project	1967	1968	1969	1970	1971	Total
1.2 Research and Experimentation in Ditches and Dikes Project Area.	0.73	0.80	0.90	1.00	1.10	4.53
1.3 Plant Pest Survey and Research	2.69	3.00	3.50	4.00	4.30	17.49
1.4 Botanical Survey and Research	0.42	0.50	0.58	0.63	0.70	2.83
1.5 Soils and Fertilizers Research	7.33	8.50	9.50	10.50	10.50	46.33
1.6 Plant Pest Control Research	0.20	0.27	0.34	0.42	0.50	1.73
1.7 Agricultural Toxicology Research	0.70	2.50	2.50	2.00	2.00	9.70
2. Economic Crops Development						
2.1 Rubber	15.50	16.50	18.00	19.00	20.00	89.00
2.2 Cotton	7.07	9.00	11.00	13.00	15.00	55.07
2.3 Maize and Sorghum	-	1.00	1.70	2.50	3.00	8.20
2.4 Coconut	0.48	2.00	2.50	3.00	3.50	11.48
2.5 Sugar cane	-	3.00	3.00	2.00	2.00	10.00
2.6 Oil Palm	0.19	0.80	1.20	1.50	1.70	5.39
2.7 Kenaf	-	0.80	1.30	1.70	2.00	5.80
2.8 Mulberry and Silkworms	3.92	3.00	3.00	3.50	4.00	17.42
2.9 Other Economic Crops	9.87	5.00	6.00	7.00	8.00	35.87

Government Agency / Project	1967	1968	1969	1970	1971	Total
3. Extension Services						
3.1 Seed Multiplication	4.23	4.80	5.60	6.50	7.30	28.43
3.2 Extension Services	1.90	2.30	2.80	3.30	3.80	14.10
3.3 Farm Mechanization Training	1.00	1.50	2.00	2.50	3.00	10.00
3.4 Plant Pest Control	5.28	5.80	6.50	7.30	8.20	33.08
Department of Forestry	84.29	94.45	107.80	113.65	127.60	527.79
1. Survey and Research						
1.1 Forest Resources Survey	5.45	5.00	5.00	5.20	5.50	26.14
1.2 Silvicultural Research	1.54	1.65	1.75	1.85	1.95	8.74
1.3 Watershed Management Research	3.13	3.80	4.50	5.30	5.80	22.53
1.4 Botanical and Zoological Research	0.64	0.70	0.80	0.90	1.00	4.04
1.5 Wood Technology Research	2.55	2.60	2.65	2.70	2.75	13.25
2. Forest Protection and Control						
2.1 Forest Reservation	12.84	14.00	16.00	10.00	12.00	64.84
2.2 Forest Protection	14.77	18.00	22.00	26.00	30.00	110.77
2.3 Control of Forests under Concession	14.19	14.80	15.50	16.20	17.00	77.69

Government Agency / Project	1967	1968	1969	1970	1971	Total
2.4 Wild Life Conservation	1.15	1.40	1.80	2.50	3.30	10.15
3. Forest Management						
3.1 Forest Management and Improvement	7.66	9.00	11.00	13.00	15.00	55.66
3.2 Reafforestation	15.02	18.00	21.00	24.00	27.00	105.02
3.3 Management of Botanical Gardens and National Rarks	5.36	5.50	5.80	6.00	6.30	28.96
Department of Rice	62.47	68.00	76.60	85.30	93.80	386.17
1. Research and Experimentation						
1.1 Variety Tests	3.15	3.20	3.50	3.80	4.00	17.65
1.2 Rice Experiment and Multiplication Stations	16.39	18.00	20.00	22.00	24.00	100.39
1.3 Rice Technological Research	6.00	7.00	7.80	8.60	9.60	39.00
1.4 Agricultural Experiments in Ditches and Dikes Project Area	3.49	3.80	4.10	4.40	4.70	20.49
1.5 Rice Protection Research and Training Centre	2.63	3.00	3.50	4.00	4.50	17.63
1.6 Form Equipment and Machinery Research	1.87	-	-	-	-	1.87
2. Rice Extension Services						
2.1 Extension Services	14.21	16.50	18.70	21.00	23.00	93.41

Government Agency / Project	1967	1968	1969	1970	1971	Total
2.2 Rice Pest Control	11.77	13.00	15.00	17.00	19.00	75.77
2.3 Large-Scale Rice Demanstration Farm	2.96	3.50	4.00	4.50	5.00	19.96
Department of Fisheries	43.00	48.20	55.40	62.35	68.40	277.35
1. Development of Fresh-Water Fishery						
1.1 Fresh-Water Fishery Development	19.76	21.00	23.00	25.00	27.00	115.76
1.2 Fishery Development in Ditches and Dikes Project Area	1.56	1.70	1.80	1.90	2.00	8.96
1.3 Rehabilitation of Public Fishing Areas	1.35	3.00	4.00	5.00	6.00	19.35
1.4 Fresh-Water Fishery Research Institute	-	-	1.00	2.00	3.00	6.00
1.5 Regional Agricultural Research Centres	0.21	0.50	0.80	1.10	1.50	4.11
1.6 Huay Siton Fishery Demonstration	0.10	0.20	0.30	0.40	0.50	1.50
2. Development of Brackish-Water Fishery						
2.1 Brackish-Water Fishery Development	1.33	1.50	1.70	1.90	2.10	8.53
3. Development of Marine Fishery						
3.1 Marine Fishery Development	16.89	18.50	21.00	23.00	24.00	103.39
4. Development of Fishing Occupation						
4.1 Development of Fish Processing Industries	1.80	0.80	1.00	1.20	1.40	6.20

Government Agency / Project	1967	1968	1969	1970	1971	Total
4.2 Fishery Training Centre	-	1.00	0.80	0.85	0.90	3.55
Department of Livestock	68.04	70.60	76.55	82.70	88.95	386.84
1. Livestock Improvement and Extension Services						
1.1 Improvement of Animal Breeds	21.37	20.00	21.00	22.00	23.00	107.37
1.2 Distribution of Animal Breeds	4.76	6.00	8.00	10.00	12.00	40.76
1.3 Improvement and Expansion of Swine Breeds	2.51	3.00	3.20	3.50	4.00	20.41
1.4 Promotion of Dairy-Cow Raising	1.97	2.00	2.10	2.20	2.30	10.57
1.5 Livestock Development in Ditches and Dikes Project Area	1.44	1.60	1.70	1.80	1.90	8.44
1.6 Animal Nutrition	2.67	2.70	2.75	2.80	2.85	13.77
2. Prevention and Control of Animal Diseases						
2.1 Animal Diseases Control	23.55	25.00	27.00	29.00	31.00	135.55
2.2 Vaccine Production	6.03	6.30	6.50	6.80	7.00	32.63
3. Research and Experimentation						
3.1 Veterinary Research	2.20	2.30	2.40	2.50	2.60	12.00
3.2 Animal Husbandry Research	1.54	1.70	1.90	2.10	2.30	9.54

Government Agency / Project	1967	1968	1969	1970	1971	Total
Department of Irrigation	875.29	936.74	921.00	921.00	945.97	4,600.00
1. General Irrigation Development						
1.1 Water Resources Surveys	26.59	28.00	30.00	32.00	34.00	150.59
1.2 River Training	23.67	25.00	10.00	4.00	0.70	63.37
2. Construction of State Irrigation						
2.1 Mae Yom, Phrae	20.05	40.00	40.00	22.00	-	122.05
2.2 Greater Mae Klong, Kan Chanaburi	191.14	230.00	230.00	230.00	230.00	1,111.14
2.3 Mae Taeng Chiang Mai	41.38	20.00	-	-	-	61.38
2.4 Lam Pao, Kalasin	78.45	45.00	42.00	40.00	40.00	245.45
2.5 Lam Praplerng, Nakhon Ratchasima	26.99	20.00	-	-	-	46.99
2.6 Kaeng Kracharn, Phetchaburi	26.53	25.00	20.00	-	-	71.53
2.7 Kiew Lom, Lampang	30.06	25.00	22.00	-	-	77.06
2.8 Lam Takong, Nakhon Ratchasima	62.52	25.00	-	-	-	87.52
2.9 Ta Chied, Phatthalung	20.08	18.00	15.00	-	-	53.08
2.10 Nam Phong, Khon Kaen	57.14	70.00	60.00	25.00	25.00	237.14
2.11 Nam Oon, Sakhon Nakhon	7.57	53.00	56.00	46.00	31.00	193.57
2.12 Nam Pran, Prachuap Khiri Khan	5.89	35.00	45.00	45.00	40.00	170.89

Government Agency / Project	1967	1968	1969	1970	1971	Total
2.13 Pa Som, Uttaradit	117.00	117.00	172.00	195.00	165.00	766.00
2.14 Kud, Chiang Mai	-	-	10.00	30.00	40.00	80.00
2.15 Uttaradit and Phitsanulok Diversion Dams	-	-	20.00	60.00	100.00	180.00
2.16 Upper Chi, Chaiyaphum	-	-	-	10.00	30.00	40.00
2.17 Nam Yang, Roi-Et	-	-	-	10.00	25.00	35.00
2.18 Upper Mun, Nakhon Ratchasima	-	-	-	10.00	25.00	35.00
3. Construction of People's Irrigation						
3.1 Irrigation Tanks, Northeast	44.14	46.00	48.00	50.00	52.00	240.14
3.2 Water Use Control, North	5.36	7.74	5.00	5.00	5.00	28.10
3.3 Wiers and Barrages	42.70	43.00	44.00	45.00	46.00	220.70
3.4 Ditches and Dikes	16.66	20.00	15.00	15.00	15.00	81.66
4. Development of the Chao Phya Basin						
4.1 Drainage, 1st and 2nd Phase	23.23	25.00	17.00	17.00	17.27	99.50
4.2 Kra Siew Irrigation Tank	8.14	19.00	20.00	30.00	25.00	102.14
Department of Land Development	51.69	61.60	72.10	82.80	95.40	363.59
1. Land Classification and Land Census						

Government Agency / Project	1967	1968	1969	1970	1971	Total
1.1 Land Classification	11.46	12.00	13.00	15.00	17.00	68.46
2. Land Improvement and Conservation						
2.1 Land Fertilization	8.28	10.50	11.50	13.00	15.00	58.28
2.2 Soil and Water Conservation	11.81	15.00	17.00	19.00	22.00	84.81
2.3 Land Development Extension Services	2.46	3.60	4.80	5.70	7.00	23.56
3. Land Policy						
3.1 Land Tenure Survey	3.06	5.00	7.00	9.00	11.00	35.06
3.2 Technical Services in Land Resettlement	2.27	1.00	1.20	1.40	1.60	7.47
4. Soil Survey						
4.1 Soil Survey and Analysis	10.94	13.00	16.00	18.00	20.00	77.94
4.2 Pasture Development Demonstration	1.41	1.50	1.60	1.70	1.80	8.01
	52.73	57.00	63.50	70.00	76.70	319.93
Department of Land Cooperatives						
1. Organization and Promotion of Land Improvement Cooperatives						
1.1 Land Improvement Cooperatives in the Northeast	13.43	14.00	16.00	18.00	20.00	81.43
1.2 Land Improvement Cooperatives in the Central Plain	11.31	12.00	13.00	14.00	15.00	65.31

Government Agency / Project	1967	1968	1969	1970	1971	Total
1.3 Land Improvement Cooperatives in the North	7.16	9.00	11.00	13.00	15.00	55.16
1.4 Land Improvement Cooperatives in the South	5.10	5.50	6.00	6.50	7.00	30.10
2. Organization and Promotion of Land Settlement Cooperatives						
2.1 Land Settlement Cooperatives in the North	5.89	6.20	6.50	6.80	7.20	32.59
2.2 Land Settlement Cooperatives in the Central Plain	2.35	2.50	2.70	2.90	3.10	13.55
2.3 Land Settlement Cooperatives in the South 'Region'	4.71	5.00	5.25	5.50	5.80	26.26
3. Organization and Promotion of Land Hire-Purchase and Land Tenants' Cooperatives						
3.1 Land Hire-Purchase and Land Tenants' Cooperatives	2.70	1.80	1.90	2.00	2.10	10.50
4. Organization and Promotion of Land Cooperative Federations	2.70	1.80	1.90	2.00	2.10	10.50
4.1 Land Cooperative Federations	0.08	1.00	1.15	1.30	1.50	5.03
Department of Credit and Marketing Cooperatives	5.52	6.94	8.47	10.02	11.57	42.52
1. Organization of Credit and Marketing Cooperatives						
1.1 Credit Cooperatives	1.48	1.50	1.55	1.60	1.65	7.78

Government Agency / Project	1967	1968	1969	1970	1071	Total
1.2 Agricultural Production Credit Cooperatives	2.02	3.22	4.50	5.80	7.10	22.64
1.3 Paddy Marketing Cooperatives	0.97	1.07	1.17	1.27	1.37	5.85
1.4 Agricultural Products Marketing Cooperatives and Industrial Cooperatives	1.05	1.15	1.25	1.35	1.45	6.25
State Enterprises (Total)	19.31	12.60	21.40	6.48	6.10	65.89
Fish Marketing Organization	10.34	3.00	3.00	1.48	2.20	20.02
Rubber Plantation Organization	8.97	9.60	18.40	5.00	3.90	45.87
Grand Total	1,495.05	1,624.22	1,684.41	1,747.21	1,869.39	8,420.28

A 3 Second Plan Development Projects Financed by Foreign Loans - Agriculture Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
1. Kaeng Kracharn (1)	8.00	4.40	4.00	-	-	16.40
2. Lam Pao, Lam Praplerng, Mae Taeng(1)	20.00	7.40	-	-	-	27.40
3. Greater Mae Klong (first Phase) (1)	120.00	100.00	50.00	50.00	-	320.00
4. Chao Phraya (third phase) (1)	8.00	4.40	4.00	2.00	-	18.40
5. Kud, (Chiang Mai)	-	-	40.00	30.00	20.00	90.00
6. Pasom, Uttaradit	36.00	120.00	134.00	114.00	86.00	490.00
7. Uttaradit and Phitsanulok Diversion Dams	-	-	150.00	150.00	100.00	400.00
8. Greater Mae Klong (second phase)	-	-	150.00	100.00	100.00	350.00
9. Pran, Prachuap Khiri Khan	-	30.00	30.00	20.00	10.00	80.00
10. Upper Chi Chaiyaphum	-	-	-	30.00	15.00	45.00
11. Nam Yang, Roi-Et	-	-	-	30.00	15.00	45.00
12. Nam Oon, Sakhon Nakhon	-	35.00	15.00	10.00	-	60.00
13. Upper Mun, Korat	-	-	-	30.00	15.00	45.00
Grand Total	192.00	301.20	567.00	566.00	361.00	1,987.20

(1) Projects continued from the First Plan

A 4 Second Plan Development Expenditures Financed by Foreign Grants - Agriculture Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
PROJECTS CONTINUED FROM THE FIRST PLAN						
A. United States	51.6	65.2	37.8	38.7	22.0	215.3
1. Soil and Water Conservation	10.0	10.0	10.0	8.0	8.0	46.0
2. Agricultural Business	7.0	9.0	8.0	7.0	3.0	34.0
3. Farmers' Associations	7.0	8.0	4.0	3.0	-	22.0
4. Agricultural Credit	1.0	1.0	1.0	1.0	-	4.0
5. Agricultural Economics	1.9	1.9	1.8	1.7	1.0	8.3
6. Soil Survey	2.0	1.3	-	-	-	3.3
7. Agricultural Extension Services	10.0	10.0	10.0	8.0	8.0	46.0
8. Applied Research	5.0	19.0	3.0	10.0	2.0	39.0
9. Survey of Mun and Chi Basins	9.7	6.3	-	-	-	16.0
B. United Nations	6.7	4.3	2.3	0.5	-	13.8
1. Rice Protection	0.5	-	-	-	-	0.5
2. Rubber Development	4.4	3.0	1.7	0.5	-	9.6
3. Demonstration Farm, Kalasin	1.8	1.3	0.6	-	-	3.7

Project	1967	1968	1969	1970	1971	Total
C. Colombo Plan	15.3	10.3	10.3	9.8	-	45.7
1. Demonstration Cotton Ginnery	0.5	0.5	0.5	-	-	1.5
2. People's Irrigation Work	9.8	9.8	9.8	9.8	-	39.2
3. Pasture Development	5.0	-	-	-	-	5.0
D. Other	8.1	6.4	3.1	1.3	-	18.9
1. Forest Products Institute	0.8	0.4	-	-	-	1.2
2. Dairy Farm, Chiang Mai	2.0	1.4	0.7	-	-	4.1
3. Marine Fishery Institute	1.1	0.9	-	-	-	2.0
4. Thai - Danish Dairy Farm	1.4	1.2	1.0	-	-	3.7
5. Teak Improvement	1.3	1.2	-	-	-	2.5
6. Thai - Israel Rural Development	1.5	1.3	1.3	1.3	-	5.4
Total projects continued from the First Plan	81.7	86.2	53.5	50.3	31.8	303.5
NEW PROJECTS	18.3	23.8	56.5	64.7	83.2	246.5
Grand Total	100.00	110.00	110.00	115.00	115.00	550.00

APPENDIX B

Second Plan Water Resources Development Projects

Project	Brief Description	Total Irrigable Area (rai) 1/	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost 2/ (millions of baht)
A. **Projects Continued from the First Plan**					
NORTH -					
Ping River Basin					
1. Mae Taeng, Chiang Mai	A diversion weir to be constructed on the Mae Tang; excavation of a right bank main canal with 78 laterals	150,000	100,000	1963 - 1968	150.0 (40.0)
2. Economic Water Use, Chiang Mai - Lamphun	Construction of 2,009 small control gated structures and 1,225 small check gates on people's irrigation canals	600,000	600,000	1964 - 1968	25.0
Wang River Basin					
3. Kiew Lom, Lampang	A storage dam to be constructed with a height of 36 metres and a storage capacity of 100 million cubic metres on the Mae Wang	(35,000)	(35,000)	1964 - 1969	100.0

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
Yom River Basin					
4. Mae Yom, Phrae	A diversion weir to be constructed on the Mae Yom; excavation of main canals on both banks with 27 laterals	224,000	74,000	1948 - 70	183.0 (60.0)
Central Region					
Chao Phraya River Basin					
5. Chao Phraya Drainage, First Stage	Excavation of 10 main drainage canals, 280 kilometres long, with 52 laterals, 508 kilometres in length	-	-	1965 - 70	108.8
6. Kra Siew, Suphan Buri	A storage dam to be constructed with a height of 18 metres and a storage capacity of 200 million cubic metres on the Kra Siew Creek	115,000 (50,000)	-	1966 - 71	107.0
Mae Klong River Basin					
7. Greater Mae Klong, First Stage	Construction of a diversion dam on the Mae Klong; excavation of the left-bank main canal with 13 laterals and 7 drainage canals	1,000,000 (70,000)	610,000 (70,000)	1962 - 70	1,070.0 (300.0)

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
Petchaburi River Basin					
8. Kang Kra Charn, Phetchaburi	A storage dam and 2 saddle dikes to be constructed with a height of 58 metres and a storage capacity of 710 million cubic metres on the Petchaburi River; excavation of irrigation canals and 167 kilometres of drainage canals	122,000 (170,000)	42,000	1964 - 69	308.0 (32.0)
NORTHEAST					
Chi River Basin					
9. Lam Pao, First Stage, Kalasin	Two storage dams to be constructed in the Lam Pao and Huey Yang creek; excavation of a right bank main canal with 4 laterals.	100,000 (75,000)	100,000 (75,000)	1963 - 67	215.0 (30.0)
10. Nam Phong, First Stage, Khon Kaen	A diversion weir to be constructed on the Nam Phong, excavation of main canal on both banks with 35 laterals.	302,000 (200,000)	220,000 (145,000)	1965 - 69	220.0 (114.0)

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period(rai)	Construction Period	Capital Cost (millions of baht)
Mun River Basin					
11. Lam Pra Plerng, Nakhon Ratchasima	A storage dam to be constructed with a height of 49 metres and a storage capacity of 152 million cubic metres on the Lam Pra Plerng; excavation of a left bank main canal with 5 laterals.	66,500 (33,000)	66,500 (33,000)	1964 - 68	160.0 (20.0)
12. Lam Takong, Nakhon Ratchasima	A storage dam to be constructed with a height of 38.5 metres and a storage capacity of 220 million cubic metres on the Lam Takong. Relocation of 17,350 kilometres of railway line and 17,960 kilometres of the highway.	238,000 (150,000)	238,000 (150,000)	1964 - 68	170.0
Irrigation Tanks in the Northeast					
13. Irrigation Tanks	Construction of 12 tanks with distribution systems.	34,500	10,000	1964 - 67	78.6
South					
14. Ta Chied, Patthalung	A diversion weir to be constructed on the Ta Chied Creek, excavation of 2 main canals with 6 laterals.	100,000	100,000	1964 - 69	62.0
Diversion Irrigation					
15. Diversion Irrigation	Construction of 9 diversion irrigation projects	100,000	100,000	1964 - 70	194.4

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
Ditches and Dikes					
16. Greater Chao Phraya and Phetchaburi	Water distribution for every plot of cultivated land.	5,300,000	4,080,000	1964 - 68	139.8
River Training					
17. Chao Phraya River. Nakhon Sawan - Chao-Phraya Dam - Bang Barn.	Redredging of the shallow sections of the Chao Phraya River with construction of bottom panels for a distance of 252 kilometres	-	-	1964 - 69	39.8
Total of 17 Continued Projects		2,914,000 (783,000)	2,022,500 (508,000)		3,231.4 (596.0)
B. New Projects					
NORTH					
Ping River Basin					
1. Kud, Chiang Mai	A storage dam to be constructed with a height of 100 metres and a capacity of 300 million cubic metres on the Mea Tang	(100,000)	-	1969 - 73	300.0

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
Nan River Basin					
2. Pa Som, Uttaradit	A storage dam to be constructed with a height of 100 metres and a storage capacity of 9,000 million cubic metres on the Nan River	2,300,000 [3] (3,400,000) [3]	-	1964 - 72	1,426.0
3-4. Uttaradit and Phitsanulok	Two diversion dams to be constructed on the Nan River as a part of the Pasom Project; excavation of main canals on both banks with 132 laterals.	3,000,000	-	1969 - 76	2,000.0 (600.0)
5. Economic Water Use, Wang, Yom, Nan River Basins	Construction of 1,200 small control gated structures and 600 small check gates on people's irrigation canals.	360,000	360,000	1969 - 71	15.0
Central Region **Chao Phraya River Basin**					
6. Chao Phraya Drainage, Second Stage	Continuation of the work, excavation of drainage canals about 600 kilometres in length.	-	-	1971 - 76	132.0
Mae Klong River Basin					
7. Greater Mae Klong, Second Stage	1. Construction of a distribution system of the Vajiralongkorn Dam for the remaining 1.4 million rai with the excavation of 4 main canals and 23 laterals. 2. Construction of a storage dam at Wang Masang on the Kwae Yai with a storage capacity of 6,000 million cubic metres	1,400,000 (930,000)	-	1970 - 74	1,425.0 (300.0)

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
Pran River Basin					
8. Pran, Prachuap Khiri Khan	A storage dam to be constructed with a height of 30 metres and a storage capacity of 300 million cubic metres on the Pran River; excavation of main canals on both banks with 13 laterals	170,000 (170,000)	100,000 (100,000)	1967 - 72	250.0 (50.0)
NORTHEAST					
Mae Klong River Basin					
9. Nam Oon, Sakhon Nakhon	Construction of a storage dam with a height of 30 metres and a storage capacity of 475 million cubic metres on the Lam Nam Oon; excavation of main canals on both banks with 13 laterals.	160,000 (102,000)	160,000 (102,000)	1967 - 71	224.0 (30.0)
Chee River Basin					
10. Lam Pao Extension, Kalasin	Continuation of the work from the first stage; excavation of the main canals and laterals.	238,000 (179,000)	238,000 (179,000)	1968 - 71	104.0 (46.0)
11. Upper Chi Chaiyaphum	A storage dam to be constructed with a height of 33 metres and a storage capacity of 470 million cubic metres on the Chi River; excavation of the main canals on both banks with laterals.	190,000 (100,000)	-	1970 - 75	260.0 (60.0)

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
12. Lam Nam Young, Roi-Et	Construction of a storage dam with a height of 18 metres and a storage capacity of 600 million cubic metres on the Lam Nam Young; excavation of the main canals on both banks with laterals.	200,000 (100,000)	-	1970 - 75	260.0 (60.0)
Mun River Basin					
13. Upper Mun, Nakhon Ratchasima	Four storage dams to be constructed with a height of 23 metres and a storage capacity of 262 million cubic metres on the Mun River and its three branches; Lam Sae, Lam Lak and Lam Sakae; excavation of main canals and laterals.	112,000 (70,000)	-	1970 - 75	190.0 (40.0)
Irrigation Tanks in the Northeast					
14. Irrigation Tanks	Construction of 34 tanks with a total capacity of 233 million cubic metres and distribution systems.	165,500 (70,000)	129,500 (70,000)	1967 - 72	238.3 -
Diversion Irrigation					
15. Diversion Irrigation	Construction of 15 diversion Irrigation Projects.	400,000	400,000	1967 - 73	168.0 (60.0)
Ditches and Dikes					
16. Ditches and Dikes	Ditches and dikes to be constructed in the area of Mae Tang, Mae Yom, Lam Pao, Nam Pong, Lam Pra Plerng, Lam Nam Oon, Greater Mae Klong and Pran Projects.	2,480,000 3/	2,480,000 3/	1967 - 71	49.6

Project	Brief Description	Total Irrigable Area (rai)	Irrigable Area Increased During the Plan Period (rai)	Construction Period	Capital Cost (millions of baht)
River Training					
17. River Training, Nan	Redredging of the shallow sections of the Nan River with construction of bottom panels for the distance of 420 kilometres	-	-	1967 - 71	40.0
Total of New Projects		6,395,500 (1,821,000)	1,387,500 (451,000)		7,081.9 (1,246.0)
Grand Total		9,309,500 (2,604,000)	3,410,000 (959,000)		10,313.3 (1,842.0)

1/ Figures for irrigable area in the brackets represent the irrigable area in the dry season.

2/ Figures for capital cost in the brackets represent the additional cost for canal lining; capital costs include the costs of resettlement.

3/ Existing irrigable area not included in the total.

CHAPTER X

INDUSTRY AND MINING

1. Industrial activity increased at an average annual rate of 10.3 % during the period of the First Plan and the sector was playing an increasingly dynamic role in the national economic development. The Government policy has been to consentrate mainly on the promotion of private industrial investment, by domestic and foreign investors, in order to stimulate economic growth and provide employment opportunities for the rapidly growing population. This has induced a broad and expanding participation in the industrial growth of the nation. Although the industrial labour force still amounts to only about 4.7 % of the total labour force or about 2 % of the total population of the country.

2. In 1965 there were 38,000 factories registered in Thailand, of which 60 % were rice mills and 97 % were small-scale industries employing less than 50 workers each. Since small-scale industry serves as a base for national industrial development, the Government's policy has been to assist small-scale industries in improving their efficiency and capacity for future growth into larger units.

Over 70 % of the GDP originating value added in the manufacturing sector is accounted for by the following industry groups: food industry, tobacco industry, beverage industry, tools and equipment industry, machinery industry, and chemical and chemical products industry. The food industry, including rice mills, sugar mills, and slaughter-houses, contributed about 31% of total manufacturing GDP in 1965. Although the relative significance of the food processing industry group has declined, it continued to be the largest component of manufacturing during the period of the First Plan.

Industry Objectives

Policy Objectives

3. Accelerated industrial development is an objective of the Second Plan which has been adopted in order to realize a structural change in the economy with the manufacturing sector growing, creating employment opportunities and utilizing greater supplies of indigenous raw materials. In order to realize this objective, the policy of the Government will be:

(i) To promote further industrial investment by following the promotion policies proclaimed in the Industrial Promotion Act and to design other measures which will stimulate industries beneficial to the national economy, especially those utilizing domestic raw materials and labour and joint ventures with Thai interests.

(ii) To restrict the establishment of new state enterprises except where public interest dictates, as in the field of public untilities, of social welfare, and of national security. The policy will be to avoid competition with the private sector and where such competition currently exists consideration will be given to the transfer by sale or lease of the state enterprise to the private sector.

(iii) To promote free competition among private industrial activities and to prevent unfair competition or monopoly restraints.

(iv) To furnish industrial enterprises with technical services, such as training and marketing assistance and fiscal and monetary incentives. Special support will be given to assist both small-scale and cottage industries to improve their efficiancy and increase their production.

(v) To accelerate the surveying of domestic natural resources which can be developed as raw materials for industrial activities.

(vi) To enhance the role of science and technology in the adaption and application of modern knowledge to the domestic industrial/ environment.

(vii) To assist industrial enterpreneurs in locating sites for establishing factories by developing industrial estates or parks.

Manufacturing Targets

4. The manufacturing sector is expected to grow at an annual rate of about 11 % during the Second Plan period and represent about 13.6 % of GDP by 1971. The major industrial production targets are presented in Table I and are discussed in this section

Table I

Second Plan Major Industrial Production Targets (1)

Industrial Product	Unit	1965	1971
Sugar	Tons	320,000	270,000
Glass	Tons	56,500	70,000
Paper	Tons	22,300	75,000
Chemical fertilizer	Tons	-	250,000
Steel	Tons	100,000	400,000
Car assembly	Units	8,692	30,000
Automobile tyres	Units	140,000	300,000
Cement	Million tons	1.25	2.8
Gunny bags	Million bags	39.9	65.0
Cotton textiles	Million Sq. yards	251.5	610.0
Cigarettes	Million cigarettes	10,500.0	12,500.0
Refined oil	Million barrels	13.0	18.0
Plywood	Million sheets	2.12	5.0

(1) Includes production by private and state enterprises

5. **Sugar:** Sugar production cannot be exported without a subsidy because of high costs due to the poor quality of the sugar cane and the inefficiency of the sugar mills. Production for the Second Plan is estimated on the basis of internal demand and the limited volume of exports which are feasible without subsidy.

6. **Glass:** Glass production capacity of about 70,000 tons per annum is adequate for domestic requirements, plus a surplus for exports.

7. **Paper:** The paper industry is expected to be a growth industry during the Second Plan. Internal demand for paper equalled over 90,000 in 1964 and is projected to exceed 100,000 tons by 1967. In contrast, the state enterprise and private factories can produce about 22,000 tons of writing and printing paper per year and private factories can produce about 2,400 - 3,000 tons of low grade papers, such as card board. Production capacity is less than domestic demand for every major kind of paper product.

8. **Chemical fertilizers:** The 1971 target for chemical fertilizer production is 250,000 tons. A chemical fertilizer plant will begin production in Lampang in 1967, and a chemical fertilizer mixing plant will be opened during the Second Plan period. The total consumption of chemical fertilizer is expected to increase from 145,000 tons in 1966 to 320,000 tons in 1971 as the establishment of new private factories permits the reduction of prices.

9. **Steel:** The domestic demand for steel is expected to jump from 400,000 tons in 1966 to 600,000 tons in 1971, largely because of the marked expansion of office and dwelling construction. The majority of steel producing facilities in Thailand are scapiron smelters, but two large iron and steel mills will be established during the Second Plan and production will rise to 400,000 tons.

10. Automoblie Assembly: In 1965 there were 7 automobile assembly factories, assembling trucks, motor-cars, and tractors totalling 8,700 units. In 1966 two more factories opened with an estimated total capcity of assembling 9,800 motor-cars, 1,400 tractors, and 12,400 trucks. Automobile assembly is expected to expand to the level of 30,000 units by 1971.

11. Automobile Tyres: In 1965 the domestic factories could supply about 35% of the domestic demand for 400,000 automobile tyres annually. In 1971 automobile tyre production is estimated to rise to 300,000 units equal to about 50 percent of annual demand.

12. **Cement:** At present there are four cement factories with a total production capacity of about 1.4 million tons per year. During the Second Plan production capacity expected to double to a level which will satisfy internal demand and provide some surplus for export.

13. Gunny bags: In 1966 there were 9 mechanized gunny bag factories, four of which were state enterprises. Two more factories will be opened in 1967, bringing total production capacity up to 80 million gunny bags per year. The 1971 production target of 65 million bags, 50 million to satisfy domestic requirements and 15 million for export, indicates that some excess capacity will appear unless export efforts are more successful.

14. Textiles: The damand for textiles was 430 million square yards in 1965 and is projected to increase to 640 million square yards in 1971. In contrast, the 1965 capacity of the country's 400 weaving mills, 350 of which hand operated looms, was 252 million square yards of cotton textiles. During the Plan period textile production will be promoted to increase to the level of 610 million square yards in 1971, an average annual growth rate of 16%

thus largely satisfying internal demand and reducing the dependence on foreign textile imports.

15. Cigarettes: Cigarette production is a state monopoly and the rate of increase is expected to be approximately proportionate to the increase in population.

16. Oil Refining: There are currently four oil refineries in Thailand, and they are expected to have a total refining capacity of about 20.5 million barrels a year by the end of the Plan period, somewhat in excess of domestic demand.

17. Plywood: The high level of construction activity has greatly increased the domestic demand for plywood which has recently been in short supply. A private and a public factory were in operation in 1966 and two new private factories are expected to be established during the Plan period. This industry will provide attractive investment opportunities for selling in the domestic and the export markets, especially if the afforestation programme is successful in sustaining on adequate supply of high quality raw materials

Development Projects: Industry 1/

Industrial Promotion and Finance

18. The Board of Investment will continue to promote industrial enterprises by granting special benefits under the Industrial Promotion Act provides special benefits to industrial enterprises. These privileges include exemption from import, income and business taxes; free transmission of foreign exchange; the use of foreign technicians; guarantees against competition from government enterprises; and in some cases, controls on the imports of substitute

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1/ See Appendix A for details of financing by project.

products. Promotion certificates had been granted to 358 enterprises in mid 1966, six years after the promulgation of the Industrial Promotion Act. Seventy % of the promoted enterprises were located in Bangkok - Thon Buri and Samut Prakan, and the remaining 30 % in other provinces. The promoted firms were engaged in the following activities: 19 % in construction, 15 % in textile weaving, 12 % in hotels, 10 % in restaurants, 7 % in automobile and bicycle assembly and various types of machinery and equipment, 6 % in electrical appliances and spare parts, and 31 % in other industries. During the Plan period it is expected that 50-70 enterprises will be promoted annually. Industrial promotion efforts will be particularly directed towards the encouragement of industries utilizing domestic raw materials, such as the food processing industry and the construction industry, as well as industries located in the rural areas which can contribute to the objectives of the accelerated Rural Development Programme.

19. The Industrial Finance Corporation of Thailand (IFCT) was created with equity capital form the domestic commercial banks, and other financial institutions and corporations, and it received subsidized loans and budgetary grants from the Government. The IFCT grants loans to industrial investors in amounts of 500,000 baht or more, according to the economic feasibility of the projects and the benefits accruing to the national economy. The demand for loans is expected to increase to 80 million baht per year.

Small Scale Industry

20. Small Industry Service Institute: Because of the inadequate knowledge and experience of the Thai entrepreneurs and the shortage of technical skills, a Small Industry Service Institute will be established in the Industrial Promotion Department of the Ministry

of Industry. This office will serve as a centre for providing technical knowledge, training, research, and machinery designing for interested businessmen. The Institute will also identify investment opportunities for small-scale industries and promote them, especially in the rural area. It is expected to render services and to promote over 1,000 small-scale industries per year. It will also provide special services for the primary engineering and textile weaving industries.

21. Marketing services for industrial and handicraft products: A marketing programme will be implemented to broaden the market for Thai industrial and handicraft products. It will include assistance in establishing retail shops, merchandise exhibition rooms, market analysis and research, export promotion of local products, development of new products and the improvement of designs.

22. Small Industry Loan Programme: While the IFCT makes industrial loans over 500,000 baht, there is an acute need for industrial capital in small amounts by the small-scale industries. A Small Industry Loan Fund has, therefore, been established in the Ministry of Industry to make industrial loans in amounts under 500,000 baht at an interest rate of 9 percent. The Government will contribute 5 million baht annually and this will be matched by a counterpart fund from the private commercial banks, who assist in the administration of the programme. During the Plan period, it is expected that the full 10 million baht per year will be lent for small-scale industrial investment, including the hire-purchase of machinery and equipment.

Industrial Estates

23. Because private industrialists have experienced great difficulties in acquiring appropriate and reasonably priced industrial sites, especially for small and medium-scale industries, the Ministry

of Industry will establish an industrial estate area at Rangsit in 1967. Public services such as roads, electricity, water works and communication facilities will be provided there. The industrial estate area covers about 500 rai plus a residental area of about 200 rai. The indusrial estate area will be increased in size over the next three years and the feasibility of establishing additional industrial estates will be studied.

Industrial Management and Research

24. With the assistance of the UN Special Fund, an Industrial Productivity Centre was established in 1962 under the supervision of the Ministry of Industry to provide management and technical training. Over 2,600 managers and technicans have already received training at the Centre. To make this project even more effective during the Second Plan period, the training specialists of the Centre will be sent to industrial locations to provide advisory services and management training in accordance with the Industrial Counselling Service Programme.

25. The Technological Research Institute of the Applied Science Research Corporation will be strengthened to conduct scientific research on idustrial raw materials, manufacturing by-products, and other industrial problems.

26. The current absence of fixed standards for industrial products frequently results in unjust competition and loss of export sales. During the Plan, regulations for industrial product standardization of both imported and local products will be established. Specifications will refer to the objective content as well as the appearance of products, and methods of testing product qualities will be established.

27. A programme of industry case studies was initiated for the preparation of the Second Plan and it has been decided to make the

study of the potentialities and developments of the major industries a continuing project. Industry studies are focused on market demand, current production patterns, manufacturing possibilities, and measures to improve efficiency to provide the basis for the formulation of industrial policies.

Industrial State Enterprise Projects

28. The development expenditures of the industrial state enterprises will be strigently curtailed and the emphasis will be placed upon improving organizational efficiency. Only the following industrial state enterprises have development projects during the Plan period:

(i) Fang Oil Refinery - The oil exploration project which has been performed for many years is expected to terminate, although the crude oil drilling operation will continue.

(ii) Bangkok Dock Company Limited - The company has a programme to improve and enlarge its ship repairing facilities and docks, and a ship building installation will be established.

(iii) Preserved Food Organization - To utilize its capacity, the Organization will increase its production of preserved food for military and commercial markets, thus increasing consumption of local agricultural products and improving its own efficiency.

(iv) Glass Organization - The Organization will install facilities to produce about 5 tons of neutral glass per day.

(v) Battery Organization - The Organization has capacity to produce 26,000 battery jackets per year, and it has a small investment programme to improve its quality to international standards.

(vi) Thai Plywood Company - The Company will increase monthly production to about 250,000 sheets of plywood and it will engage in afforestation activities. It will also start producing fibre board.

Services for Private Investors

29. The Government policy is to promote private industrial development. In addition to the broad range of social and economic development projects presented in this Plan, all of which enhance the environment and possibilities for private enterprise, the following specific measures to assist private industrial investors will be implemented: The Government will provide industrial land allocations and fix industrial areas. Basic services, such as transportation and communication facilities electricity and water works will be provided to selected rural areas where the deficiency of such services has been a deterrent to industrial investment. The entire tax and tariff structure will be reviewed to determine how they can be used as stimulants to induce industrial investment while maintaining equity in their impact on different groups in the society. The Government will increase programmes of training for industrial workers and vocational education during the Plan period.

30. In order to encourage private industrial investment, the Government will provide potential investors with pre-investment studies of promising business opportunities identified in its programme of industry surveys. The following categories of industry are considered to be of high priority during this Plan period:

(i) Iron foundries - Foundry activity in Thailand is still small and there is considerable opportunity for the expansion of this industry.

(ii). Chemical processes utilizing petroleum by-products- The by-products of the oil refineries can be used as the raw materials in chemical factories to produce chemical fertilizers and other kinds of chemical products. These processes require large volumes of low cost electric power and their expansion must be planned in line with the programme of energy development.

(iii) Construction Materials industry - The demand for construction products and materials has been increasing, causing the prices of some construction materials such as wood to increase. The Government will promote production of construction materials such as cement products.

(iv) Automobile assembly industry - The automobile assembly plants depend for their raw materials on the importation of parts and equipment from abroad. The prices of automobiles assembled in Thailand are only slightly lower than the prices of imported models. During the Plan period, the increased demand for automobiles is expected to create a large enough market to make the local production of automobile parts economical in Thailand.

(v) Glass industry - The demand for glass as a raw material in the production of other products such as glass tubes and electric bulbs is increasing. The production of glass products like neutral glass which benefit other industries will be promoted.

(vi) Food processing industries - To further the integration of the agricultural and industrial sectors of the economy, the Government will promote food processing industries for internal and external markets. Such industries are modern rice milling, preserved food production, animal food preparation, seed oil processing, sugar refining, and other industries that can transform agricultural products into semi-industrial products.

Mineral Development

31. In spite of those relatively small Gross Domestic Product and employment in the mining sector, it has been important because of its rapid growth (13.9 % annually) during the Second Phase of the First Plan, its stimulus to industrial processing, and

to capacity to earn foreign exchange. Tin production is the most important mining activity and Thailand ranks third among all tin producing countries in the world, producing about 14 % of the international supply. The export of tin accounts for about 8 - 9% of the total value of Thai exports. In the Second Phase of the First Plan, the revenue from mining considerably increased because of the higher price of tin in the world markets and the increased exports of iron ore and manganese.

Mining Objectives

Policies

32. Mineral resources are national assets and their development will benefit the country as a whole. Mining development policies for the Second Plan are as follow:

(i) To conduct over-all mineral surveys and to develop the mineral resources of the nation.

(ii) To revise and improve the laws and regulations affecting the mining industry in order to encourage increased private investment in mineral development.

Mining Targets

33. The Gross Domestic Product originating in the mining sector is expected to increase at an annual rate of 6.6 %. equalling 2.0 % of GDP in 1971. The production targets for the primary minerals are presented in Table 2 and discussed in the following paragraphs.

Table 2

Second Plan Mineral Production Targets

(tons)

Minerals	1965	1971
Tin (Ore)	26,419	32,000
Wolfram	483	550
Antimony	2,496	2,500
Lead	12,403	15,000
Manganese	30,265	50,000
Gypsum	11,240	50,000
Flourite	51,829	60,000
Lignite	125,000	420,000

34. Tin: While the largest tin deposits are in the South, mining will be expanded into other areas in the North and the Central Plain. Surveys reveal that total tin deposits exceed one million tons and new developments in mining techniques have permitted discovery of vast new deposits off-shore of the province of Phuket, where new mines have already been opened. Tin production will vary with the level of world demand, and of the current price level is maintained the 1971 production target of 32,000 tons may be surpassed.

35. Wolfram: There are a number of wolfram mines in Thailand and considerable wolfram is obtained as a by-product of tin production. The volume of production during the past 15 years has declined due to the decrease in world demand and prices and the volume of production and exports are expected to be maintained at about the present level during the Plan period.

36. Antimony: The antimony deposits located in Surat Thani and Phrae are small and deep, with the consequence that production

costs are high. Production is expected to continue at present levels.

37. Lead: Lead production is expected to increase somewhat higher than the level of present production, and if the price of lead in foreign markets is favourable, new lead and zinc mines may be opened.

38. Manganese: Manganese of battery grade is adequate for internal demand with some surplus for export; manganese of metallurgical grade is mostly exported; and manganese of chemical grade has only rarely been mined. It is expected that both internal and external demand for manganese will increase, and the level of managanese production will be higher.

39. Gypsum: Gypsum production is entirely consumed in the country and a marked increase is expected during the Plan period because of the expansion in the construction and cement industries.

40. Fluorite: The 1965 production of 51,829 tons was particularly low and it is expected that production during the Second Plan will be approximately the same level as recent years or 60,000 tons per year.

41. Lignite: There are lignite mines at Lampang and Krabi, and new deposite have been discovered at Lamphun. The lignite deposits at Krabi are used as fuel for generating electric power, and the deposits at Lampang will be utilized both for producing chemical fertilizers and for generating electric power. The great increase in lignite production in 1971 is largely due to the consumption of lignite for chemical fertilizer production.

42. Base metals: Two base metals have been discovered in Thailand, copper and zinc. Copper will not be mined in the near future, but the zinc deposits at Tak are commercially attractive and may be developed during the Plan period.

43. Iron: Large iron ore deposits are known to exist in the South and the Central Plain and surveys are continuing in other areas. Commercial development of these deposits depends on the ore grade, deposit size and location in relation to market price. The low market price of iron ore is currently discouraging mining, but local ores may be used as raw materials for a domestic steel industry. Iron ore reserves of 7 million tons have been discovered at Lopburi and 30 million tons at Loei.

44. Rock Salts: There are vast rock salt deposits in the Northeast of Thailand; the drilling survey at Chaiyaphum revealed deposits in excess of 600 million tons. The Government will study possibilities of utilizing this natural resource in a commercially feasible investment project.

Mining Development Projects

45. The Department of mineral Resources has a project to conduct surveys and to drill wells to locate mineral deposits and this project has the simultaneous objective of providing fresh water in the rural areas, especially the Northeast where the shortage of potable water is severe problem. During the Plan period, the Department of Mineral Resources will drill over 2,500 wells with these joint objectives.

46. In order to improve the knowledge of the extent and potentiality of Thailand's mineral deposits, the Department of Mineral Resources will conduct comprehensive geological surveys, beginning in the North. In addition special surveys will be conducted of tin, iron ore in the East and the Northeast, natural fuel in the North, base metals, ceramics in the North, manganese surveys in the North and the South, and physiological surveys by air will be conducted all over the country including the Gulf of Siam.

47. In order to improve the efficiency of mining operations, Mineral Resources Centres will be established in the North, the South, and the Northeast to provide technical assistance to private mine operators.

Problems and Long-term Prospects

48. Because of the Government's unsatisfactory experience with state enterprises as a means of industrial development, the policy of curtailing government industrial investment and supporting private enterprises was adapted. Private industrial firms became increasingly important, during the Second Phase of the First Plan, and this trend should accelerate during the Second Plan period.

49. The industrial concentration in the Bangkok - Thon Buri area will continue unless basic services are extended into the rural areas. Successful agro-business development requires that the appropriate service facilities be made available near the sources of raw materials in the rural areas.

50. The deficiency in technical skills and shortage of industrial sites constitute a long-term and continuing obstacle to industrial development. It will be necessary to continue the emphasis upon technical training for skilled labour and providing industrial sites well beyond the period of this Plan.

51. Sucessful industrial promotion requires coordination of the many government offices responsible for aspects of industrial policy. In order to obtain maximum benefits, industrial surveys and research must be conducted in the best qualified unit and the results must be effectively communicated to the private sector. Continuing study is required of the critical factors affecting investment decisions - taxes and duties, industrial credit, promotion privileges, etc. Industrial policies cannot be static; careful and coordinated analysis of the industrial sector is required to determine when

revisions will be desirable.

52. The potentiality for future industrial development is great and one of the factors which would substantially improve the investment climate is the formulation of definite plans to sell or lease the industrial state enterprises to the private sector.

53. Industrial and agricultural expansion must be synchronized within the economy. Growth in each sector must be mutually reinforcing. Agriculture will continue to be the primary sector of the economy well beyond the Second Plan and this development should not be jeopardized in order to accelerate the rate of industrialization or visa versa.

54. Although mineral production depends largely upon foreign demand, the survey of mineral resources and the promotion of investment in mining activities should receive greater emphasis. Further inducements to private investment are possibly by disseminating knowledge of mining technology and revising the rules and regulations concerning mining activities. Besides, the prospects of increasing local demand for mineral resources must be studied, and the development of industries consuming domestic mineral resources as raw materials must be accelerated.

APPENDIX A

A 1 Summary of Second Plan Development Expenditures by Financing Source - Industry and Mining Secter.

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget Appropriations	125.30	133.90	126.81	105.23	108.25	599.49
Foreign Loans	-	-	-	-	-	-
Foreign Grants	25.00	25.00	30.00	35.00	35.00	150.00
State Enterprises' own Resources	41.47	27.65	27.09	35.66	35.71	167.58
Total	191.77	186.55	183.90	175.89	178.96	917.07

A 2 Second Plan Development Projects Financed by Budget Appropriations – Industry and Mining Sector

(millions of babt)

Government Agency / Project	1967	1968	1969	1970	1971	Total
Department of Industrial Promotion	14.30	11.00	11.50	11.00	12.00	59.80
1. Small Industry Service Institute	9.30	3.00	3.50	4.00	5.00	24.80
2. Marketing Service for Industrial and Handicraft Products	-	3.00	3.00	2.00	2.00	10.00
3. Small Industry Loan Programme	5.00	5.00	5.00	5.00	5.00	25.00
Department of Industrial work	1.43	2.76	2.83	2.98	3.25	13.25
1. Industry Productivity Centre	1.43	2.76	2.83	2.98	3.25	13.25
Department of Science	3.57	5.00	7.00	8.75	10.50	34.82
1. Industrial Research	2.80	3.50	5.00	6.25	7.50	25.05
2. Industrial Product Standardization	0.77	1.50	2.00	2.50	3.00	9.77
Office of the Secretary to the Minister	12.10	22.30	13.40	6.00	5.00	58.80
1. Sugar Promotion Centre	7.00	6.00	6.00	6.00	5.00	30.00
2. Industrial Development Units	-	-	-	-	-	-
3. Industrial Estates	5.10	16.30	7.40	-	-	28.80
The National Research Council	13.48	11.14	7.38	-	-	32.00
1. Technological Research Institute	13.48	11.14	7.38	-	-	32.00

(millions of baht)

Government Agency Project	1967	1968	1969	1970	1971	Total
Department of Mineral Resources	58.93	65.50	68.50	64.50	65.50	322.93
1. Survey and Drilling of Artesian Wells	31.14	35.00	35.00	30.00	30.00	161.14
2. Mine Development	6.66	7.50	8.50	9.50	10.50	42.66
3. Geological Surveys	21.13	23.00	25.00	25.00	25.00	119.13
State Enterprises	21.49	16.20	16.20	12.00	12.00	77.89
1. Fang Oil Refinery	12.00	12.00	12.00	12.00	12.00	60.00
2. Bangkok Dock Company Limited	1.60	4.20	4.20	-	-	10.00
3. Preserved Food Organization	7.89	-	-	-	-	7.89
Total	125.30	133.90	120.81	105.23	108.25	599.49

A 3. Second Plan Development Projects Financed by Foreign Loans and Grants - Industry and Mining Secter

(Millions of baht)

Project	1967	1968	1969	1970	1971	Total
Continuing Projects from First Plan	22.60	16.00	8.10	1.70	-	48.40
1. Investment Promotion	3.40	2.10	-	-	-	5.50
2. Industrial Development	8.00	6.20	4.70	-	-	18.90
3. Technological Research Institute	2.60	1.50	0.50	-	-	4.60
4. Mineral Surveys in the Northeast	1.60	-	-	-	-	1.60
5. Small Industry Service Institute	4.40	3.90	2.90	1.70	-	12.90
6. Mineral Surveys in the North and the South	2.60	2.30	-	-	-	4.90

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
New Projects	2.40	9.00	21.90	33.30	35.00	101.60
GRAND Total	25.00	25.00	30.00	35.00	35.00	150.00

A 4. Second Plan Development Projects Finance by State Enterprises Own Resources - Industry and Mining Secter

(millions of baht)

State Enterprises	1967	1968	1969	1970	1971	Total
1. Thai Plywood Company, Limited	1.97	1.15	1.09	1.16	1.21	6.58
2. Fuel Organization	37.00	24.00	26.00	28.00	30.00	145.00
3. Glass Organization	2.50	2.50	-	6.00	4.00	15.00
4. Battery Organization	-	-	-	0.50	0.50	1.00
Total	41.47	27.65	27.09	35.66	35.71	167.58

CHAPTER XI

TRANSPORTATION AND COMMUNICATIONS

1. Transportation and communications play a vital role in national development, not only in stimulating economic growth but in fostering political and social cohesiveness. Effective transportation and communications improve accessibility to remote areas, facilitate better public administration and rural development, and enhance the internal security of the nation. Since the inception of economic development planning in Thailand, this sector has been accorded high priority and it has been allocated a significant share of development expenditures. During the First Plan attention was focused on improving the existing system of transportation and communications in order to create a sound foundation for future development. Major targets were reached but obstructions during the execution stage caused delays and necessitated substantial alterations of the original plan. The experience gained, however, was utilized to prepare this Second Plan.

Progress and Problems under the First Plan

Inland Transportation

2. The highway system includes national highways, provincial highways, and rural feeder roads. National highways total 9,880 kilometres, and 5,045 kilometres (or 51 %) have been paved with concrete or asphalt. They are not yet completely linked, and being mostly sub-standard, need further improvements. Provincial highways comprise 6,900 kilometres, of which 425 kilometres (6 %) have been paved with concrete or asphalt; the rest require improvement for year round usage. During the First Plan 160 kilometres of rural feeder roads were improved and annexed to the provincial system. By the end of 1963, there were still another 13,840 kilometres of rural feeder roads that could only be used during the dry season.

3. The completion of the Nong pladuk - Suphan Buri line and the construction of the Kaeng Khoi - Bua Yai line, which is scheduled to be completed in 1967, have extended the rail system from 3,584 kilometres in 1961 to 3,688 kilometres in 1966. The State Railway of Thailand purchased diesel engines,

increased its rolling stock, and replaced tracks in the North and Northeast with a heavier type.

Water transportation

4. Although there has been continued expansion of port facilities, congestion at the Bangkok Port is still a pressing problem. Because of its unfavourable site, expansion of the Bangkok Port is not a real solution to the need for a deep water port. A site location survey for a second port is under way and will be finished in the beginning of 1967.

5. There are eleven commercial ports serving coastal shipping and fishing ports in the South. All of these are shallow water ports except Kantang where the navigation channel has been dredged to increase its accessability. The lack of dredging equipment and the long lead-time required for technical surveys must be overcome if navigable channels are to fulfill their potential for water transportation. To initiate the establishment of an ocean shipping industry, the Thai Maritime Navigation Company supplemented its fleet with two freighters to be used between Thailand and Japan.

Air transportation

6. Eleven of the 19 commercial airports in the country require new or improved runways to handle the domestic airlines with complete safety. Air traffic has risen from 1,5[illegible],416 passenger/kilometres in 1961 to 3,340,400 passenger/kilometres in 1966. Thai Airways punchased three in order to render better and safer services.

Communications

7. There are approximately [illegible],000 telephones in Bangkok - Thon Buri, an increase of 25,500 during the First Plan, and 28,425 telephones in the provinces. Nevertheless, the present telephone service is considered inadequate and requires substantial improvement. In twenty-two provinces of the Central Plain, East, and Northeast, a mainline telecommunication system (micro-wave) is now available, while expansion of services to the North and South is underway.

Objectives

Policy Objectives

8. Transportation Development: The development of land, water and air transportation should be integrated into an economical and effective system to satisty the national transportation requirements.

9. Highways: The objective is to construct a national highway system with linking trunk routes to accomodate the increasing movement of cargo and passengers and to develop provincial and rural highways to spread the benefits into the remote areas.

10. Railways: Development emphasis should be placed improvement of the existing system, except when new construction is an integral part of regional development objectives or is required for national security purposes.

11. Water transportation: The objectives are:

(i) To improve efficiency and to extend international port facility services.

(ii) To develop a sound shipping industry as a means of supporting domestic economic development plans and the expansion of foreign trade.

(iii) To encourage private enterprise in coastal and inland shipping by extension and improvement of piers, dredging of navigable channels at coastal ports, and construction of major inland navigable channels.

12. Air transportation: The objectives are:

(i) To meet the increasing demand for domestic air transportation and to develop services to localities which are not readily accessible by land and water transportation.

(ii) To maintain Thailand's status as a major air junction in Southeast Asia by improving services such as aeronautical communications and air traffic control.

13. Communications: The policy during the Plan period will be to improve services, particularly in the fields of telephone and telecommunication, by the coordinated development of communications based on a single main telecommunication system.

Plan Targets

14. The major targets for the development of transportation and communications during the Plan period are presented in Table 1. Implementation of the sector programme and realization of the sector targets will give Thailand a substantially more complete and efficient system of transport and communications.

Table 1

Second Plan Targets for Development of Transportation and Communications

		1966	1967	1968	1969	1970	1971
1. National Highways							
Total National Highways, end of year	(km.)	9,881	10,249	10,603	11,049	11,674	12,301
New construction during the year	(km.)	399	368	354	446	625	607
Improvement of existing highways	(km.)	219	422	416	276	173	138
Asphalt pavement	(km.)	775	715	808	825	-	-
2. Provincial Highways							
Total provincial highways, end of year	(km.)	6,903	7,203	7,659	8,115	8,571	9,027
New construction during the year	(km.)	420	300	456	456	456	456
Improvement and rehabilitation of existing highways	(km.)	396	376	387	387	393	396
3. Railway Transportation							
Number of freight cars 1/		8,200	8,240	8,280	8,320	8,360	8,396
Number of passenger cars 1/		820	820	857	857	857	857

Table 1 (cont.)

		1966	1967	1968	1969	1970	1971
Number of diesel engines		165	165	185	243	243	243
Number of diesel rail cars	(Set)	10	20	48	48	48	48
Total passenger movement	(1,000 passenger - kms.)	2,932,000	3,020,000	3,111,000	3,204,000	3,300,000	3,399,000
Total freight movement	(1,000 ton - kms.)	1,518,000	1,548,000	1,539,000	1,611,000	1,643,000	1,676,000
4. Telephone Communication							
Total number of telephones		83,000	96,200	103,200	116,200	145,000	186,300
In Bangkok - Thon Buri		55,000	64,200	68,200	78,200	104,000	124,300
In the provinces		28,000	32,000	35,000	38,000	41,000	44,000
5. Postal and Telegraphic Communication							
Total number of stations		317	352	392	432	472	512
In Bangkok - Thon Buri		27	32	42	52	62	72
In the provinces		290	320	350	380	410	440

Note : 1/ These figures do not include replacement of 339 freight cars and 173 passenger cars.

Development Projects Transportation

15. The development expenditures for transportation and communications will total 17,099 million baht. This includes 9,192 million baht from budget appropriations, 4,138 million baht from foreign loans, 1,310 million baht from foreign aid, and 2,459 million baht from income of Government enterprises. The details of development expenditures are given in Appendix A.

Highway Development

16. The Plan's development of national highways is part of the seven-year national highway construction and rehabilitation programme (1965 - 1971). The principal objectives are to raise the standards of the national highways and link the net work for year-round use. The project encompasses 7,510 kilometres of highways, consisting of 3,123 kilometres of asphalting of existing highways and 4,387 kilometres of new construction. After completion of the project the national highway system will equal 12,301 kilometres, 10,000 kilometres of which will be covered with concrete or asphalt. The routes to be constructed during the Plan period are shown in appendixes B and C.

17. Provincial Highways: The Plan target for the construction of new provincial highways is 2,124 kilometres and the improvement and rehabilitation of 1,939 kilometres. This development will be implemented under the Seven-Year Provincial Highway Plan, 1965 - 1971. In addition, 2,124 kilometres of provincial highways will be constructed during the Plan period by other organizations on under different programmes. The Royal Irrigation Department will construct about 400 kilometres and the Control Security Command 824 kilometres. Approximately 500 kilometres outside of the Provincial Highway Plan will be constructed under an IBRD loan. The local government is expected to upgrade or construct approximately 400 kilometres of rural roads to the standard that they can be incorporated into the provincial highway system.

Railway Transportation

18. A project for the improvement and extension of present services has been underway since the First Plan. During the Second Plan, this project includes the procurement of 121 diesel engines, 205 passenger and 435 freight cars, 196 eight wheel chasses and one trainset; the expansion of eight station yards; the replacement of 388 bridges and the installation of 70-80 pound rails and fastening equipment in the mountain regions; and the improvement of safety conditions on the Maeklong line.

19. Survey and Construction of New Lines: The major effort in this project is the completion of the Kaeng Khoi - Bua Yai line which has been under construction since 1966. The aim is to synchronize the railway project with construction of a second deep water port which will probably be situated on the East Coast. An economic and engineering survey of the Bang Pra - Laem Chalang - Sattahip lines will be undertaken. For the Denchai - Chiang Rai - Chiang Saen line a similar type of study will be undertaken. The Bangsue - Klongtoey line will be constructed to facilitate the linking of the port to the railway.

Surveys and Development of Other Modes of Transportation

20. National Survey and Research on Transportation Services and Costs: The objective of the survey is to discover the causes of bottlenecks in the

transportation system, as well as to analyze transportation costs. This project was launched in 1966, and will continue during the Second Plan.

21. Foreign experts in collaboration with the Highway Department will study institutional arrangement the aim to co-ordinate and synchronize the functions of various fields of communications and transportation.

22. The highway transportion survey, initiated in 1966, will assess the volume of freight and passenger movements by trucks, buses and taxis to provide a basis for planning an appropriate system of highway transportation.

23. Bus terminals will be constructed to encourage efficient long-distance bus services. Measures will be taken to establish regular bus stops, improve time schedules, and increase the number of buses. This project was started in 1966 when the Department of Transportation established 3 terminals at Nakhon Ratchasima, Udon Thani and Chiang Mai. During the Plan period the Department will set up 7 first class passenger terminals, 20 second class terminals, and 20 third class terminals.

24. Training programmes will be expanded to familiarize vehicle operators with road safety measures and to improve general passenger service. During the Plan period the transportation school in the Central Plain will offer driving courses to 600 students and additional training to 2,400 car operators and 7,600 conductors. Twelve training schools will be established in other regions.

25. The state enterprises will improve the efficiency of their freight and passenger services. The express transport organization will replace 311 trucks and 230 buses, improve maintenance facitities and expand its freight stations. The Transport Company plans to purchase 150 new buses to replace obsolete ones during the Plan period.

Water Transportation

26. The survey and improvement of inland water ways, initiated during the First Plan, will continue in order to facilitate freight and passenger ship movement. The project involves mapping and technical surveys to obtain basic data on the Chao Phraya River from Rama 6th Bridge to Nakhon Sawan, the Noi River, the Pasak River and the Lop Buri River. After the completion of this

survey, dredging will take place along an estimated distance of about 60 kilometres.

27. The survey and improvement of the southern coastal ports includes a technical survey and the dredging of the navigation channels to facilitate access to the ports and reduce midstream transhipments. During 1967 - 1971 technical surveys will be made for coastal ports at Songkhla, Chumphon, Satul, Ranong, Krabi, Pak Phanang and Surat Thani. Construction of a port at Songkhla and the dredhing of the navigation channel to Kantang will be completed. Dredging will also be carried out at Songkhla, Pattani, Pakpanang, Surat Thani, Narathiwat and Phuket.

28. Economic and engineeeing surveys of an appropriate port site on the East Coast will be conducted with the objective of reducing the heavy burden on the Bangkok port.

29. Improvements in efficiency and capacity of freight loading facilities at the berth sites at the Bangkok Port will be made. This project was started during the First Plan, and emphasized replacement and increase of lifting equipment. During the Plan period, warehouses willbe constructed, and 50 - 65 lift trucks, 5 cranes, and other lifting equipment will be procured each year.

30. The Bangkok Port wharf and berth facilities will be extended during the Plan period. Thirty midstream dolphins for seven vessels will be constructed. The East side wharf will be expanded to accomodate 4 vessels, werehouses will be constructed and lift equipment procured.

31. Marine transportation will be improved by the procurement of both coastal and transoceanic vessels. The Thai Maritime Navigation Company will dispose of three old ships and replace them with two new freighters of 5,000 tons capacity each and reorganize to management. The Thai Shipping Company will replace its ship two new freighters of 800 tons capacity each for coastal operations.

Air Transportation

32. Domestic commercial airports will be paved to raise them to international standards for all-weather use. This project began during the

First Plan and includes construction of all-weather commercial airports at Chiang Mai, Ubon Ratchathani, Ubon Thani, Phitsanulok, Lampang, and Chiang Rai; asphalt pavement of the runways at Phuket, Pattani, and Hua Hin; initiation of airport construction at Hat Yai to replace the airport at Songkhla; and survey and design of airports at Mae Sariang, Mae Sot and Mae Hong Son. During the Plan period, the project will include the completion of airport construction at Hadyai; beginning construction at Mae Sot, Khon Kaen, Trang, Nakhon Panom, Mae Hong Son, Mae Sariang, extension of the runway at Pattani to standard length; and the erection of 4 passenger terminals and air traffic control towers.

33. The Flight Radio Communication project was initiated in 1961 and includes improvement in the air traffic control system. Flight radio communication systems, traffic control towers, a VOR station, transmitter, and receiving stations have been installed. A communication centre was established at Tungmahamek and an improved landing control system using instruments from Donmuang and Rangsit was installed. During 1967 - 1971, runway accessories will be installed on 4 runways and a communication centre to improve ground control services in Bangkok will also be provided.

34. The Plan includes improvements of Donmuang airport to alleviate the congestion and to improve landing and take-off services until the second commercial airport is completed. There will be improvements in the runways, taxi ways, plane parking spaces, passenger terminals, and landing traffic control facilities. This project was started during the First Plan and the east side runway for military and commercial planes was constructed while the passenger terminal was modernized. During the Plan, the runways, taxi ways, parking spaces, and landing traffic control facilities will be further improved.

35. The plans to improve Donmuang airport will only temporarily solve the problem of air traffic congestion in Bangkok. The increasing air traffic necessitates an engineering survey and design of a second commercial airport, which will be able to accommodate heavy jets and supersonic airplanes.

36. The Civil Aeronautical Training Centre provides training in air traffic control, maintenance, flight communication, flight meteorology, and flying. The project was originally designed as a five year project (1961 to 1966) under the sponsorship of the U.N. Special Fund but at the termination of Special Fund

assistance, the Department of Aviation took over. During the Plan period various training courses for 140 - 180 persons will be continued.

Development Projects: Communication

Postal, Telegraphic and Telex Service

37. Postal and telegraphic services will be expanded in Bangkok and the provinces by the establishment of 50 new stations. 150 postal agencies will be transferred to the jurisdiction of the Postal and Telegraphic Department in order to improve the standards of efficiency of provincial services.

38. Domestic and international telex services enable users to communicate rapidly in written words, thus enhancing the development of trade and other business. The telex services will be extended to the business sector, to major provinces, and to other countries where there are significant trade relationships. During the First Plan, 200 telex junctions were installed in Bangkok; 100 each at Hat Yai, Lampang, and Nakhon Ratchasima; 24 each at Nakhon Sawan and Chon Buri. Internationally telex services were established with Japan, Manila, Hongkong, and Hamburg. During the Plan period, 14 domestic junctions will be installed and an international connection will be made between Bangkok and Singapore.

39. A provincial telegraph development project to replace and extend telegraph lines was scheduled to be completed in 1966. Although there were delays in the implementation substantial results were achieved and the project is expected to be concluded in 1967. It still involves extension and replacement of poles and lines and linkages to make use of the main telecommunication line of the Telecommunication Organization.

Telephone Communication

40. At the end of 1966 about 55,000 telephones were estimated to exist in the Bangkok - Thon Buri Metropolitan area. The Plan project provides for increases in the number of telephone junctions and telephones in three stages. By 1971 the area will have 142,300 telephones, which is considered adequete for requirements.

41. The provincial telephone services will be expanded and improved. 24,000 numbers are expected to be installed during the Plan period bringing the number of telephones in 68 provinces to a total of 52,460 by 1972.

42. Long distance telephone services will be improved by making use of the main line telecommunication system. This project will link the feeder telecommunication network to the provincial telephone junctions which have been improved or will be improved so that these junctions can make use of the main system. Provincial junctions along the main line system will be linked directly.

Telecommunication System

43. For purposes of improving public administration and national security, an automatic telex system linking Bangkok and 30 provinces in the Central, Northeastern and Eastern regions will be installed. The project was started in 1966 and is expected to be completed in 1968. The Ministry of Interior will take responsibility for installing the feeder system which will be linked to the main telecommunication system (microwave) under the administration of the Telecommunication Office.

44. During the First Plan, construction of the main telecommunication system in Thailand was started. A nation-wide technical survey was conducted and the mainline system was installed in the Central, Eastern and Northeastern regions. The present project envisages the completion of this mainline system in the other two regions within 2 years. The completion of the project will result in a thorough linkage of mainline telecommunication systems in the nation. In the North the line will extend from Bangkok to Chiang Mai; in the Northeast from Bangkok to Nong Khai and Ubon Ratchathani; in the East from Bangkok to Aranyaprathet and Chanthaburi; and in the South from Bangkok to Phuket, Pattani and Yala. The U.N. Special Fund will assist the Telecommunication Office in training about 250 operators.

45. The construction of a ground station to facilitate international telecommunications by satellite will be undertaken. The first step in the project is to rent a ground station which is expected to begin service in 1967. At the same time a permanent ground station will be constructed and start operating by April, 1968. The system will form an efficient international telecommunication

service by telegraph, telephone and telex. Telecommunication and television services to neighbouring countries may be extended.

Television

46. A project for the development of a nationwide television service includes the surveying, planning and construction of transmitting stations. A microwave system will be used to relay programs from Bangkok to the provinces. The survey and planning stages have already commenced in co-operation with the Japanese and British Governments and is expected to be concluded in 1967. A 635-lines television transmitting station and programme control station in Bangkok will be constructed, along with 10 transmitting stations in the North and South, to tie in with the development of the microwave system.

Major Problems and Long Term Outlook

Land Transportation

47. At present the development of highways in Thailand depends primarily on foreign firms for the technical surveys and construction work. To overcome the shortage of adequately staffed Thai construction firms, encouragement will be given to Thai contractors to participate in technical surveys and construction projects.

48. New highways will be needed as economic development progresses. To solve the problem of land availability for highway construction, surveys and land reclamation schemes should be prepared in advance.

49. The public will not derive full benefits from the highway network unless there are efficiently operated private organizations. Encouragement should be given to efficient private undertakings, and efforts made to prevent excess carrier loads which destroy highways and endanger lives.

50. Traffic congestion in the metropolitan areas and suburbs will greatly increase in the future as the pace of urbanization continues. Commuter trains for Bangkok and the introduction of diesel rail cars by the State Railway of Thailand for short hauls (200 kilometres) around Bangkok should be considered as a means of alleviating this problem.

51. The replacement of steam engines with diesel engines by the State Railway of Thailand will increase the efficiency of railway service and should prove more economical in the long run. However, the State Railway of Thailand must improvie other aspects of its services as well, particularly the supply of freight cars for hauling seasonal agricultural produce.

Water Transportation

52. The construction of a second deep-water port to relief congestion at the Bangkok Port must also provide for urban planning around the port. The construction of buildings, the requirement of space, new public facilities, and transportation facilities by passing the metropolitan area should be planned in advance for future expansion.

53. The dredging of inland waterway channels will boost the efficiency of water transportation, particularly in the Central Plan. At present services are rendered by small enterprises which tend to be irregular and inefficient. The government should encourage the growth of efficient and economical enterprises in this field.

54. A national objective is the development of a strong domestic shipping industry to encourage international trade. The training of qualified personnel is necessary since the lack of an experienced merchant marine and ship operators is an obstacle to realizing this goal.

Air Transportation

55. To relieve the severe air traffic congestion at Donmuang Airport, it is necessary to extend the runways, increase the number of flight-assisting instruments, and improve the efficiency of traffic control services. Air traffic control should be transferred to a single civilian administrative body to improve the coordination of responsibilities which are currently divided among many different organizations.

Communications

56. By the end of the Plan period, Bangkok - Thon Buri will be supplied with twice the number of telephone that are presently available and the provincial

telephone service will be improved and expanded. The Administration of the Telephone Organization at present is not suited for the rapid development of telephone communication and it should be reorganized to create a modern and flexible system for the growing demand of a vital metropolitan area.

57. The Second Plan will create an efficient telecommunication system for both domestic and international services. The establishment of a domestic microwave system and satellite ground station communication system will provide telephone, telegraph, telex and television services for the nation. At present, telecommunication services are under the jurisdiction of many independent organizations, the Telephone Organization of Thailand, the Postal and Telegraph Department, and the Telecommunications Office. Coordination of these various agencies must be improved if the communications system is to be efficiently utilized.

Appendix A

A1 Summary of Second Plan Development Expenditures by Financing Source – Transportation and Communications Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget Appropriations	1,739.68	2,060.21	2,089.02	1,786.58	1,516.29	9,191.78
Foreign Loans	886.43	1,011.97	1,071.81	618.42	549.75	4,138.38
Foreign Grants	195.00	235.00	280.00	300.00	300.00	1,310.00
State Enterprises' Own Resources	739.90	455.99	420.05	416.90	425.93	2,458.77
Total	3,561.01	3,763.17	3,860.88	3,121.90	2,781.97	17,098.93

A2 Second Plan Development Projects Financed by Budget

Appropriations - Transportation and Communications Sector

(millions of baht)

Government agency / Project	1967	1968	1969	1970	1971	Total
Office of the Under-secretary, Ministry of Communication	49.8	12.97	57.73	54.53	53.37	228.4
1. Survey and research on transportation service and costs of transportation	1.2	4.5	-	-	-	5.7
2. National Communication and Transportation Institute	-	4.0	3.5	2.5	2.0	12.0
3. Second deep water port	-	-	50.0	50.0	50.0	150.0
4. Development of civil aviation center	-	1.43	1.6	2.03	1.37	6.43
5. Construction of telecommunication system in zones 4 and 5	45.0	-	-	-	-	45.0
6. Telecommunication training center	3.6	3.04	2.63	-	-	9.27
Dept. of Commercial Aviation	72.36	76.02	62.32	24.12	26.96	261.78
1. Provincial airport development	22.5	30.0	25.0	11.0	25.0	113.5
2. Flight radio communication	16.8	10.22	1.12	3.32	1.96	33.42
3. Improvement of Donmuang airport	23.06	35.8	36.2	9.8	-	104.86
4. Survey and design of second commercial airport	10.0	-	-	-	-	10.0

(continued on next page)

Government agency / Project	1967	1968	1969	1970	1971	Total
Dept. of Land Transportation	3.72	4.39	3.6	3.4	3.2	18.31
1. Passenger terminals	2.04	2.0	2.0	2.0	2.0	10.04
2. Improvement and expansion of transportation training school	-	2.39	1.6	1.4	1.2	6.59
3. Survey of highway transportation	1.68	-	-	-	-	1.68
Harbour Dept.	17.82	35.9	34.0	17.2	24.8	129.72
1. Geographical surveys of navigation channels	-	3.0	3.0	-	-	6.0
2. Channel dredging at Songkhla	7.02	12.9	-	-	-	19.92
3. Channel dredging at Pattani	1.0	8.0	9.0	-	-	18.0
4. Channel dredging at Kantang	6.5	-	-	-	-	6.5
5. Channel dredging at Phuket	0.9	8.0	8.0	-	-	16.9
6. Channel dredging of inland waterways	-	-	5.8	1.4	1.4	8.6
7. Port survey at Chumphon, Satul, Ranong, and Krabi	-	-	-	0.8	0.9	1.7
8. Channel dredging at Pakpanang	-	-	2.2	1.7	1.8	5.7
9. Channel dredging at Surat Thani	-	-	-	1.3	1.7	3.0
10. Channel dredging at Narathiwat	2.4	4.0	6.0	12.0	19.0	43.4

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Government agency / Project	1967	1968	1969	1970	1971	Total
Postal and Telegraph Dept.	86.05	50.03	31.03	30.03	31.03	228.17
1. Extension of postal and telegraph agencies	3.22	11.08	11.08	11.08	11.08	47.17
2. Extension of provincial postal and telegraph services	19.03	18.95	18.95	18.95	18.95	94.83
3. International telex services	2.15	-	-	-	-	2.15
4. Development of international radio communication	-	1.0	1.0	-	1.0	3.0
5. Domestic telex service	1.32	-	-	-	-	1.32
6. Development of provincial telegraphic service	35.33	-	-	-	-	35.33
7. Statellite telecommunication system	25.0	19.0	-	-	-	44.0
Highway Dept.	1,310.13	1,645.63	1,694.47	1,414.77	1,240.53	7,305.53
1. Development of national highways	1,128.07	1,333.38	1,400.66	1,124.31	981.83	5,968.25
2. Development of provincial highways	136.8	280.0	258.5	268.0	258.7	1,202.0
3. Highway not in project (constructed by the Dept. of Irrigation)	45.26	32.25	35.31	22.46	-	135.28
Dept. of Local Administration	72.1	28.0	-	-	-	100.1
1. Ministry of Interior's telecommunication system	72.1	28.0	-	-	-	100.1

(continued on next page)

Government agency / Project	1967	1968	1969	1970	1971	Total
Dept. of Public Relations	15.7	21.5	9.7	9.7	9.7	66.3
1. Extension of national television service	15.7	21.5	9.7	9.7	9.7	66.3
State Enterprises	112.0	185.77	196.17	152.83	26.7	673.47
State Railway of Thailand	66.60	166.97	179.27	111.13	-	523.97
1. Improvement and expansion of existing lines	8.15	160.99	179.27	111.13	-	459.54
2. Construction of Kaeng Khoi - Bua Yai	58.45	5.98	-	-	-	64.43
Express Transport Organization	7.4	8.8	6.9	4.3	2.1	29.5
1. Replacement of old trucks	3.0	5.3	4.0	2.6	1.1	16.0
2. Procurement of new buses	4.4	3.5	2.9	1.7	1.0	13.5
The Thai Maritime Navigation Co.	-	-	-	22.4	9.6	32.0
1. Procurement of ships	-	-	-	22.4	9.6	32.0

(continued on next page)

Government agency / Project	1967	1968	1969	1970	1971	Total
Aeronautical Radio of Siam, Ltd.	5.0	10.0	10.0	15.0	15.0	55.0
1. Flight communications and air traffic control	5.0	10.0	10.0	15.0	15.0	55.0
Telephone Organization of Thailand	33.0	-	-	-	-	33.0
1. Improvement of telephone service in Bangkok - Thon Buri	33.0	-	-	-	-	33.0
Reserve						
1. Construction of deep water port	-	-	-	80.0	100.0	180.0
Grand Total	1,739.68	2,060.21	2,089.02	1,786.58	1,516.29	9,191.78

A3 Second Plan Development Projects Financed by Foreign Loans - Transportation and Communications Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
1. Construction of telecommunication facilities in Zones 4 and 5	36.00	66.70	-	-	-	102.70
2. Procurement of dredges and surveying ships	50.00	-	-	-	-	50.00
3. Satellite telecommunication system	100.00	-	-	-	-	100.00
4. Construction of national highways	363.04	454.84	360.80	195.75	155.25	1,529.68
5. Construction of provincial highways	-	50.00	50.00	50.00	50.00	200.00
6. Nation-wide television extension	-	29.60	16.60	16.60	33.20	96.00
7. Improvement and extension of existing railway lines	123.38	249.20	355.19	47.88	0.88	776.53
8. Construction of Kaeng Khoi - Bua Yai line	63.04	4.96	2.02	-	-	70.02
9. Improvement of telephones in Bangkok and Thon Buri	-	-	-			
10. Improvement and extension of provincial telephone services	84.97	156.67	187.20	208.19	160.42	797.45
11. Improvement of long-distance telephone services	-	-	-	-		
12. Procurement of 2 ships	66.00	-				66.00
13. Construction of new deep-water port	-	-	100.00	100.00	100.00	300.00
14. Construction of port at Songkhla	-	-	-	-	50.00	50.00
Total	886.43	1,011.97	1,071.81	618.42	549.75	4,138.38

A4 Second Plan Development Projects Financed by Foreign Grants - Transportation and Communications Sector

(million of baht)

Project	1967	1968	1969	1970	1971	Total
A. Projects continued from first plan	180.90	83.90	58.80	25.30	20.70	369.60
1. Provincial airport construction	2.40	2.00	1.00	0.60	-	6.00
2. Survey of national highways	18.60	6.80	4.00	4.00	-	33.40
3. Telecommunication surveys	0.60	0.60	-	-	-	1.20
4. Port and railway surveys	12.00	-	-	-	-	12.00
5. Highway construction in the South	79.20	20.00	20.00	-	-	119.20
6. Meterological telecommunication system	0.70	0.70	0.70	0.70	0.70	3.50
7. Telecommunication Training Center	1.70	0.40	-	-	-	2.10
8. Khon Kaen mechanical equipment center	16.00	10.00	10.00	-	-	36.00
9. Songkhla mechanical equipment center	3.20	3.10	3.10	-	-	9.40
10. Tak mechanical equipment center	35.00	35.00	20.00	20.00	20.00	130.00
11. National highway Borbue-Buri Ram	6.30	5.30	-	-	-	11.60
12. Survey of national highway Thon Buri-Pakthor	5.00	-	-	-	-	5.00
13. Vehicle inspection	0.20	-	-	-	-	0.20
B. Project extensions 1/	14.10	151.00	221.20	274.70	279.30	940.40
Grand Total	195.00	235.00	280.00	300.00	300.00	1,310.00

1/ Projects consist of the following: Communications and Transportation Institute, Survey of National Highways, Deep Sea Ports Survey, Survey and Design of Second Commercial Airport, Improvement of Dom Muang Airport, Highways and Railways Construction, Improvement of Telecommunication System, Water Transportation Improvement, Merchant Marine Fleet, Dolphins Construction, Chao Phraya River Channel Improvement, Meterological Telocommunication.

A5 Second Plan Development Projects Financed by State Enterprises' Own Resources -- Transportation and Communications Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
State Railway of Thailand	461.83	151.20	124.90	162.70	201.10	1,101.73
1. Improvement and extension of existing railways	461.83	151.20	124.90	162.70	201.10	1,101.73
Express Transport Organization	26.04	10.5	12.4	15.0	17.2	81.14
1. Truck replacement	11.73	3.2	4.5	5.9	7.4	32.73
2. Procurement of new buses	11.14	5.3	5.9	7.1	7.8	37.24
3. Improvement of repair and maintenance workshops	1.17	1.0	1.0	1.0	1.0	5.17
4. Construction and improvement of office buildings and freight yards	2.0	1.0	1.0	1.0	1.0	6.0
Telephone Organization of Thailand	152.73	124.68	86.82	87.81	72.19	524.23
1. Improvement of telephones in Bangkok anf Thon Buri	152.73	124.68	86.82	87.81	72.19	524.23
2. Improvement and extension of provincial telephones						
3. Improvement of long-distance telephones						
Port Authority of Thailand	91.81	148.61	174.66	129.36	112.44	656.88
1. Improvement and construction of warehouses, office buildings, roads, etc.	27.99	38.37	40.89	23.44	47.11	177.80
2. Procurement of lifting and other operation equipment	31.32	46.77	33.77	25.92	30.33	168.08
3. Construction of midstream dolphins	10.0	11.0	-	-	-	21.0

Project	1967	1968	1969	1970	1971	Total
4. East coast wharf construction	22.5	52.5	100.0	80.0	35.0	290.0
Transport Co., Ltd.	5.0	5.0	5.0	5.0	5.0	25.0
1. Replacement of buses	5.0	5.0	5.0	5.0	5.0	25.0
Thai Airways Co., Ltd.	-	16.0	16.27	17.03	18.0	67.3
1. Procurement of passenger planes	-	16.0	16.27	17.03	18.0	67.3
Aeronautical Radio of Thailand Ltd.	2.49	-	-	-	-	2.49
1. Aeronautical Communications and air traffic control	2.49	-	-	-	-	2.49
Grand Total	739.90	455.99	420.05	416.90	425.93	2,458.77

Appendix B

National Highway Development Project

Routes to be Constructed During the Second Plan Period

Routes	Total Distance to be Constructed (km.)	Standard 1/	Distance to be Constructed during the Plan Period (km.)	Construction Period Planned
North				
1. Hod - Mae Srieng - Mae Laluang	55	S_2	28	1965 - 1967
Mae Laluang - Khunguam - Mae Hongsorn	158	S_2	75	1969 -
2. Kamphaeng Phet - Sukhothai	85	S_1	74	1965 - 1970
3. Tak - Mae Sod	87	S_1	87	1967 - 1871
4. Rong Kwang - Ngao	85	S_1	85	1969 - 1971
5. Srisaschanalai - Denchai	93	S_1	93	1969 - 1971
6. Tern - Loe - Lamphun	150	S_1	80	1970 -
7. Wangthong - Ban Saklek - Ban Kaosai	80	S_2	59	1970 - 1971
8. Chiang Rai - Mae Sroy	40	S_2	40	1970 - 1971
9. Pichit - Ban Saklek	15	S_2	15	1970 -
10. Lampang - Chiang Mai	102	P_1	82	1966 - 1968
11. Nakhon Sawan - Tak - Lampang - Chiang Rai	592	P_1 P_2 P_3	592	1967 - 1971
Total	1,542		1,310	

Routes	Total Distance to be Constructed (km.)	Standard[1]	Distance to be Constructed during the Plan Period (km.)	Construction Period Planned
Northeast				
1. Roi-et - Yasothorn - Ubon Ratchathani	170	P_3	135	1965 - 1969
2. Nong Khai - Ponpisai - Bung Karn - Nakhon Panom	320	S_2	107	1966 -
3. Suwanpum - Tatoom	35	S_2	35	1968 - 1969
4. Chokchai - Dejudom	345	S_1	172	1968 -
5. Buri Ram - Pakonchai	45	S_2	45	1969 - 1970
6. Wangsapung - Udon Thani	120	S_1	63	1970 -
7. Chaiyaphum - Choompac	97	S_2	57	1970 -
8. Lomsak - Loci	150	S_2	50	1970 -
9. Buri Ram - Nangrong	50	S_2	25	1971 -
10. Lomsak - Choompac	120	P_2	120	1967 - 1969
11. Saraburi - Lomsak	281	P_2	281	1967 - 1969
12. Udon Thani - Sakhon Nakhon	160	P_2	160	1967 - 1968
Sakhon Nakhon - Nakhon Panom	80	P_2	80	1969 - 1970
13. Khon Kaen - Choompac	95	P_2	95	1967 - 1968
Chumphac - Loci	128	S_1	128	1969 - 1971
Total	2,196		1,553	

Routes	Total Distance to be Constructed (km.)	Standard[1]	Distance to be Constructed during the Plan Period (km.)	Construction Period Planned
Central Plain				
1. Bangkok - Nakhon Pathom	58	4 lane	58	1970 - 1971
2. Chrun Snitwongse	8	4 lane	8	1966 - 1968
3. Thon Buri - Paktor	85	P_1	85	1968 - 1969
4. Chanthaburi - Pongnamron - Srakae	165	S_2	65	1969 -
5. Trad - Bunmairood	55	S_2	55	1969 - 1971
6. Samud Songkhram - Damnoen Sadoak	18	S_1	18	1970 - 1971
7. Donmuang - Saraburi	80	4 lane	20	1971 -
8. Bangkok - Si Racha	97	P_1	93	1966 - 1967
9. Nakhon Pathom - Phetchaburi	122	P_1	67	1966 - 1968
10. Bang Pa-in - Nakhon Sawan	192	P_1	187	1967 - 1971
Total	880		656	

Routes	Total Distance to be Constructed (km.)	Standard[1/]	Distance to be Constructed during the Plan Period (km.)	Construction Period Planned
South				
1. Ranong - Takua Pa	84	P_3	24	1965 - 1967
2. Surat Thani - Takua Pa (second stage)	30	S_1	22	1966 - 1968
3. Chumphon - Lang Suan	66	P_2	38	1965 - 1967
4. Lang Suan - Surat Thani - Tungsong	251	P_2	173	1969 -
5. Pattani - Narathiwat	98	P_2	49	1966 - 1967
Total	529		306	
Grand Total	5,149		3,825	

1/ Standard	P_1	Pavement width	6.50 - 7.00	Metres	Shoulder width	2.50 - 2.75	Metres
"	P_2	"	6.00 - 6.50	"	"	2.25 - 2.50	"
"	P_3	"	6.00	"	"	2.00	"
"	S_1	"	6.00	"	"	2.00	"
"	S_2	"	5.50	"	"	1.75	"

Appendix C

Second Plan National Highway Asphalt Pavement Project

	Total Distance to be Asphalted (km.)	Distance to be Asphalted during the Plan Period (km.)	Construction Period Planned
Asphalt Pavement Project			
1. North	365	282	1965 - 1969
2. Northeast	1,429	1,371	1966 - 1969
3. Central	756	453	1965 - 1969
4. South	573	242	1965 - 1969
Total	3,123	2,348	

CHAPTER XII

ENERGY

1. Electric energy constitutes an important part of the basic infrastructure of the economy because it stimulates the growth of other sectors, particularly industry and services. Development activities in this sector can be classified as follows:

(i) Generation - Electricity in Thailand is generated from hydroelectric, steam and diesel plants. Electricity generation is the responsibility of three public enterprises: the Yanhee Electricity Authority (YEA), the Northeast Electricity Authority (NEEA) and the Lignite Authority (LA).

(ii) Distribution - Distribution of electricity is the responsibility of two public enterprises: the Metropolitan Electricity Authority (MEA), Which covers five provinces in the Bangkok - Thon Buri area, and the Provincial Electricity Authority (PEA), which covers the remaining 66 provinces in the Kingdom and also provides electrivity to the remote rural communities.

(iii) Technical works - Technical works consists of the survey, planning and organization for the development of an integrated system.

Progress under the First Plan

Generation System

2. The First Plan targets were successfully realized; installed generating capacity increased by 355 megawatts: 163 megawatts from hydroelectric power plants, 190 from steam and 2 from diesel generators. The progress in each category will be described in this section.

(i) The major development in the field of hydroelectricity was the opening of Bhumibol Dam in the North. The first stage, completed in 1964, included installation of two generators with a total capacity if 140 megawatts. The Yanhee Electricity Authority also constructed two high-tension transmission lines of 230 KV. from the powerhouse at the Dam site to Bangkok, a distance of approximately 888 kilometres, and other high-tension transmission lines of 115 and 69 KV., with a total distance of 1,037 kilometres. The Yanhee Electricity Authority was then able supply electricity to 25 provinces in the North, the Central Plain and the East.

(ii) In the Northeast, hydroelectric power projects have been constructed at two locations. The Northeast Electricity Authority has installed two hydroelectric generators with a total generating capacity of 16.6 megawatts at the Ubolratana Dam in Khon Kaen, completed in May 1966. High-tension transmission lines of 115 and 69 KV. were laid for a distance of about 423 and 88 kilometres respectively in eight provinces within the jurisdiction of this project. The Northeast Electricity Authority also completed the construction of the Nam Pung Dam in Sakhon Nakhon province with a generating capacity of 6 megawatts. High-tension transmission lines of 69 KV. and sub-transmission lines of 22 KV. were laid for distances of about 100 and 107 kilometres respectively. Upon completion of these two projects, the Northeast Electricity Authority was able to supply electricity to ten provinces in the Northeast.

(iii) Steam generating capacity was augmented by the installation of two generators at the North Bangkok Thermal Plant in Nontha-Buri, which were completed in 1961 and 1963 respectively and increased total generating capacity there to 150 megawatts. They supplement electric power from the Bhumibol Dam during the hours of peak load requirements in Bangkok-Thon Buri. In the South at Krabi, the Lignite Authority constructed a thermal plant, using lignite as fuel, with a total generating capacity of 40 megawatts. The thermal plant at Krabi was completed in 1964 and the 115 KV. high-tension transmission line is of 500 kilometres in length. The Lignite Authority is at present serving seven provinces and will expand to eight provinces when the transmission line is fully completed.

(iv) The development of diesel generating capacity is primarily restricted to the electrification of remoted rural villages and communities. Ninety plants were established during the First Plan period with a total capacity of 2 megawatts.

Distribution System

3. The development of the distribution system must be coordinated with the expansion of generating capacity. During the First Plan period, the Metropolitan Electricity Authority implemented a project to change the voltage from 110 to 220 volts in Bangkok-Thon Buri and to expand its distribution area to near-by provinces. The Provincial Electricity Authority developed the distribution

system for the area under Yonhee first and second stages, at the Ubolratana and Nam Pung Dams, and at Krabi. The expansion of the distribution networks has been impeded by serious difficulties and delays in the negotiation of loans and the import of equipment from abroad, as well as during the preparatory stages of these projects.

Technical Works

4. Satisfactory progress was made in the survey and planning of generation and distribution systems, the adjustment of electricity rates, the training of technical personnel, the establishment of safety standards, the promotion of the use of electricity and research in the uses of atomic energy for peace. Electricity rates were reduced three times in order to promote private and industrial consumption.

Objectives

Policy Objectives

5. The primary policy of the energy sector is to provide electricity from different sources according to economic criteria for existing and future needs. To translate this policy into reality, the sector objectives will be as follows under the Second Plan:

(i) To expand existing generating capacity to serve additional communities and to extend the transmission lines so as to make the best uses of the existing facilities.

(ii) To promote the consumption of electricity of industries, services and utilities by reduction of the rate structure to the lowest economically feasible level; and to differentiate the structure on the basis of the characteristics of the demand.

(iii) To prepare a long range integrated plan for the generation and distribution of electricity so that individual projects can be evaluated in the perspective of the future national requirements.

Energy Targets

6. Table 1 shows that installed capacity is expected to more than double during the Plan period, primarily because of the increase in hydro and thermal capacity. This is in conformity with the gevernment policy of concentrating on central sources of generation of a size which can economically provide low-cost electricity, and diesel capacity, particularly of private ownership, is expected to decline at an annual rate of 7 %, with the exception of diesel capacity at Phuket which is being installed as reserve and peaking capacity by Lignite Authority. These targets are considered conservative. Other projects are under consideration and may be added if warranted by the continuing analysis of demand during the Plan period.

Table 1

Installed Energy Capacity 1964 - 1966 and Second Plan Targets

(megawatts)

Energy Source	Actual			Target				
	1964	1965	1966	1967	1968	1969	1970	1971
Hydro capacity	140.0	146.3	162.9	302.9	372.9	451.2	473.2	633.2
Thermal capacity	260.0	260.0	260.0	260.0	367.5	367.5	567.5	767.5
Gas-turbine capacity	-	-	-	-	-	15.0	30.0	30.0
Diesel capacity	146.5	142.0	130.0	128.5	137.0	135.7	134.4	133.3
Total	546.5	548.3	552.9	691.4	877.4	971.4	1,205.1	1,564.0

7. Table 2, which presents the target for the generation of energy during the Plan period, shows that the peak load requirement for the whole country will increase at an average rate of 29.5 % annually. The gross generation is expected to increase at an average rate of 33.2 % annually. The targets for the Second Plan was set partially on the basis of the growth rate during the period 1964-1966. It is expected that this trend will continue during the next 5 years. The rapid expansion is due mainly to the government policies concerning economic development, industrial promotion, and reduction of rates.

Table 2

Energy Generation 1964 - 1966 and Second Plan Targets

	Actual			Target				
	1964	1965	1966	1967	1968	1969	1970	1971
Gross Generation								
(Million Kilowatt-Hours)								
Yanhee Electricity Authority	771.0	1,033.0	1,390.0	1,863.0	2,496.0	3,345.0	4,482.0	6,006.0
Lignite Authority	8.4	64.2	116.7	140.0	168.0	202.0	242.0	290.0
Northeast Electricity Authority	-	0.3	32.0	84.0	101.0	121.0	145.0	174.0
Total	779.4	1,097.5	1,538.7	2,078.0	2,765.0	3,668.0	4,869.0	6,470.0
Gross Peak								
(Megawatts)								
Yanhee Electricity Authority	170.0	219.0	285.0	370.5	481.6	626.1	813.9	1,058.1
Lignite Authority	8.7	13.7	22.1	33.7	39.7	46.8	55.2	65.1
Northeast Electricity Authority	8.2	9.1	13.4	23.2	27.4	32.3	38.1	44.9
Total	186.9	241.8	320.5	427.4	548.7	705.2	907.2	1,168.1

8. Table 3 presents the construction targets for the distribution system.

Table 3

Second Plan Target for the Expansion of the Energy Distribution System

Projects	Transformers M.V.A.	The Length of Distribution lines (kilometres)					
		69 KV.	33 KV.	22 KV.	12 KV.	11 KV.	400 - 200 V.
1. Yanhee 1 st stage Distribution System	32.50	-	-	-	-	622	77[illegible]
2. Yanhee 2 nd Stage Distribution System	32.38	-	-	1,124	-	-	646
3. Nam Pong Distribution System	24.34	-	-	790	-	-	320
4. Krabi Distribution System	22.51	-	1,312	-	-	-	591
5. Lam Dom Noi Distribution System	9.95	-	-	816	-	-	254
6. Improvement of Distribution System in the Lower Southern Provinces	8.06	-	554	-	-	-	161
7. Installation of Diesel Generation Units	-	-	-	-	-	-	1,740
8. Expending Distribution System of the Metropolitan Power Authority	868.00	135	-	-	230	-	-

Note : The fifth and sixth projects depend upon the construction of Lam Dom Noi and Thermal Power Plant in the South.

Development Projects

9. The development expenditures for the energy sector will amount to 4,971 million baht, consisting of 1,377 million of budget expenditures, 2,260 foreign loan expenditures, 330 from foreign grants, and 1,004 financed from the state enterprises own resources; see Appendis A.

Generation System

10. Projects continued from the First Plan:

(i) Yanhee Project - The third stage, which consists of the third and fourth turbine generators of 70 megawatts each, is expected to be completed in 1968.

(ii) Krabi Project - Installed capacity will be increased from 40 to 60 megawatts upon completion of the third thermal generator in 1968, thus permitting the system to meet the needs in eight provinces.

(iii) Ubolratana Dam Project - A third hydro generator will increase the installed capacity of this project from 16.6 to 25 megawatts in 1968.

11. New Projects Under the Second Plan:

(i) Yanhee Project - The fourth stage provides for the installation of the fifth and sixth hydro generators at Bhumibol Dam and a thermal generator with a capacity of 87.5 megawatts at the North Bangkok Thermal Plant. The project also includes the construction of the third 230 KV. high-tension transmission line from the dam site to Bangkok Noi and the fourth 230 KV. high-tension transmission line from Makhon Sawan to Bangkok Noi substation facilities. This will permit the Yanhee Electricity Authority to meet the increased demand for energy in the 37 provinces under its jurisdiction.

(ii) Lam Dom Noi Project, Ubon Ratchathani - This is a multi-purpose dam with an installed capacity of 22 megawatts and able to irrigate an area of approximately 150,000 rai. It is still in the preparatory stage as additional surveys have been recommended. The construction of this project is expected to begin in 1968 and ended in 1970.

(iii) South Bangkok Thermal Plant - The initial stage consists of 2 X 200 megawatts thermal generators and 2 x 15 megawatts gas turbines which will be installed during the Plan period. The final stage will have 2 x 300 megawatts thermal generators by 1975. The thermal units should be adequate to meet the base load requirements and the gas turbines should be reserved capacity and for peaking requirements.

(iv) Sirikit Dam Power Project - This power plant will produce an average energy of about 1,000 million kilowatt-hours per year to supply the rapidly increasing needs in the Yanhee system. Its two hydro generators will have a capacity of 160 megawatts and the construction period will be from 1968 to 1971.

(v) Phuket Diesel Project - A diesel plant of 10 megawatts at Phuket will add to the reserve and peaking capacity of the Krabi system in the South.

(vi) Electrification Development Project - Small diesel generators will be installed in remote rural districts at the rate of 30 units annually.

(vii) Construction of thermal plant in the South - The supply of electricity in eight provinces, generated from Krabi system, will soon become inadequate and it is technically undesirable to extend it. It is therefore necessary to construct a new thermal plant of about 30 megawatts capacity to meet the growing demand in the area as well as to extend to other provinces.

(viii) Kang Rieng Project at Kanchanaburi - This multi-purpose project could contricute electric power of some 200 megawatts to supplement YEA's system. However, the final decision whether to implement this project will be made after the completion of the feasibility study of the second stage of Mae Klong Yai project.

(ix) Other projects under consideration include hydro-electric power projects at Nam Chern, Nam Phrom, Nam San and Nam Sai Yai. The technical and economic feasibility studies of these projects are being prepared.

Distribution System

12. There are four projects, the details of which are in Table 3, which are continued from the First Plan:

(i) Yanhee Project, First Stage

(ii) Yanhee Project, Second Stage

(iii) Nam Pong Project

(iv) Krabi Project

13. New Projects Under the Second Plan:

(i) Southern Distribution System: This provides for the construction of distribution lines connecting the systems in the provinces of Yala, Pattani and Narathiwat, and the installation of a 1,000 K.W. generator in each province. The high-tension distribution line of 33 KV. will extend 554 kilometres and the low-tension line of 400/230 V. will extend 161 kilometres.

(ii) Metropolitan Electricity Authority Project: This will include the construction of 17 new substations, the improvement of 6 existing substations, and the construction of one terminal station and one switching station in Bangkok-Thon Buri and three provinces. In addition, 135 kilometres of 69 KV. and 230 kilometres of 12 KV. transmission line will be constructed. These will be financed by a loan from the Ministry of Finance amounting to 275 million baht and the Authority's own funds.

(iii) Lam Dom Noi Project: 816 kilometres of 22 KV. and 245 kilometres of 400/230 V. transmission line will be constructed in the provinces of Ubon Ratchathani, Si Sa Ket, and Surin. Construction, which will take approximately 3 years, will begin at the same time as that of the dam.

(iv) Northeast Rural Electrification (first - stage): This project, representing a bold effort to provide electricity to nearly 1.3 million people in 2,000 remote villages in the Northeast, will distribute power from the existing Nam Pong and Nam Pung sub-station facilities by means of conventional and multigrounded neutral system. A voltage of 22 KV. three-phase three-wire and three-phase four-wire conventional system has been selected for the main distribution line with a span of 100 metres. The multigrounded neutral system will be 12.7 KV. single-phase neutral circuit for light-load distribution lines and 460/230 V. single-phase three-wire and 400/230 V. three-phase four-wire for secondary distribution lines.

(v) Other projects are situated at Kaeng Rieng, Nam San, Nam Chern, Nam Phrom and include a co-operative rural electrification project which is still in its preparatory stage.

Technical Works

14. Power survey project: A team of American experts has been assisting the Thai Government in the preparation of a twenty-year energy

development plan, which is expected to be completed in 1967.

15. Electricity rates: The electricity rate structure is being studied by the Committee on Electricity Rates and rate reductions are expected during the Plan period.

16. Training centre for technical personnel: The centre, which will receive assistance from the Government of France, will be completed in 1967 and will provide training for 300 technicians annually.

Problems and Future Outlook

17. In spite of the satisfactory progress realized during the First Plan, problems still remain and among the most important is the need for improvement in the coordination and the organization of the different electricity authorities. There are many agencies independently responsible for aspects of the planning, construction, generation and distribution of electric energy and this has created a severe problem of coordination. The Government, therefore, has approved in principle the merger of the generating agencies and the distribution agencies into unified organizations and the establishment of an overall coordinating committee. The National Energy Committee should be appointed to be responsible for the coordination between the generating and distribution agencies, to set policy and objectives, to study electricity rates and to resolve disputes that arise in a manner beneficial to the nation as a whole.

18. Many of the authorities lack qualified personnel and internal management procedures. As a consequence the quality of the service has frequently been unsatisfactory and waste has been extensive.

19. Long-term demand projections indicate that the peak energy requirement will exceed two million kilowatt-hours within 10 to 15 years and annual per capita consumption of electricity will rise to 300 kilowatt-hours. If new construction projects are taken into consideration, this level of demand can be realized, but it is of utmost importance to have a long-term plan which projects future needs. The generating agency and the distribution agency both require master plans so that projects in each function can be integrated into a coordinated long-range development programme.

20. The provision of electricity at reasonable costs has the potential for stimulating the key growth sectors of the economy - industry, mining, services. The power demand from these sectors will increase more rapidly than the sectors themselves. Generating capacity must, therefore, be increased proportionately to avoid a deficit of energy and to facilitate the economic and industrial development of the country.

APPENDIX A

A 1 Summary of Second Plan Development Expenditures by Financing Source - Energy Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget Appropriations	232.27	397.60	288.01	230.81	228.65	1,377.34
Foreign Loans 1/	393.05	380.55	570.30	628.10	287.50	2,259.50
Foreign Grants	50.00	65.00	65.00	75.00	75.00	330.00
State Enterprises' Own Resources	160.87	262.86	213.01	161.56	206.08	1,004.38
Total	836.19	1,108.01	1,136.32	1,095.47	797.23	4,971.22

1/ Including foreign exchange loan of 208 million Baht from Bank of Thailand.

A 2 Second Plan Development Projects Financed by Budget Appropriations - Energy Sector

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
National Energy Authority	52.44	59.89	83.73	12.37	13.71	222.14
1. Water power resources, survey and statistics	4.17	4.30	5.00	5.70	6.60	25.77
2. Electric power demand survey and plans	1.21	2.09	3.93	2.67	2.91	12.81
3. Lower Mekong Basin Reconnaissance	5.97	4.10	3.80	4.00	4.20	22.07
4. Pa Mong	12.24	14.00	14.00	-	-	40.24
5. Lam Dom Noi	17.60	35.40	57.00	-	-	110.00
6. Nam Pong	1.72	-	-	-	-	1.72
7. Nam Pung (Interconnection)	9.33	--	-	-	-	9.33
8. Electrician Training Centre	0.20	-	-	-	-	0.20
Office of the Atomic Energy for Peace	8.28	2.32	2.32	-	-	12.92
1. Atomic reactor research and services	8.28	2.32	2.32	-	-	12.92
Yanhee Electricity Authority	25.00	86.60	85.40	95.00	110.00	402.00
1. Yanhee 3 rd Stage	25.00	5.00	-	-	-	30.--

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
2. Yanhee 4 th Stage	-	34.60	5.40	-	-	40.00
3. Nam River	-	7.00	20.00	25.00	70.00	122.00
4. South Bangkok Thermal Plant	-	40.00	60.00	70.00	40.00	210.00
Metropolitan Electricity Authority	-	74.00	53.00	76.00	72.00	275.00
. Expanding distribution system	-	74.00	53.00	76.00	72.00	275.00
Provincial Electricity Authority	96.46	137.20	57.56	37.44	32.94	361.60
1. Yanhee 1 st Stage Distribution System	9.51	-	-	-	-	9.51
2. Yanhee 2 nd Stage Distribution System	24.31	55.31	-	-	-	79.62
3. Nam Pong Distribution System	25.34	-	-	-	-	25.34
4. Krabi Distribution System	31.10	31.95	15.58	-	-	78.63
5. Installation of diesel generating units	4.50	4.50	4.50	4.50	-	18.00
6. Yanhee 3 rd Stage Distribution System	-	8.60	-	-	-	8.60
7. Improvement of Distribution System in the lower southern provinces	1.70	14.84	15.48	10.94	10.94	53.90
8. North East Rural Electrification	-	22.00	22.00	22.00	22.00	88.00

(millions of baht)

Government Agency Project	1967	1968	1969	1970	1971	Total
North East Electricity Authority	18.00	9.74	-	-	-	27.74
1. Installation of 3 rd unit	8.49	9.74	-	-	-	18.23
2. Construction of 115 K.V. line (Udon-Nongkai)	7.51	-	-	-	-	7.51
3. Nam Prom Feasibility Study	1.00	-	-	-	-	1.00
4. Upper Chern Feasibility Study	1.00	-	-	-	-	1.00
Lignite Authority	32.00	27.85	6.00	10.00	-	75.94
1. Installation of 3 rd unit at Krabi	2.82	3.63	-	-	-	6.45
2. Construction of 115 K.V. line (Takoapa-Punpin)	14.27	4.22	-	-	-	18.49
3. Construction of Diesel Power Plant at Phuket	15.00	20.00	-	-	-	35.00
4. Construction of Thermal Power Plant in the Lower Southern Provinces	-	-	6.00	10.00	-	16.00
Grand Total	232.27	397.60	288.01	230.81	288.65	1,377.34

A 3 Second Plan Development Projects Financed by Foreign Loans - Energy Sector

(millions of baht)

Government Agency Project	1967	1968	1969	1970	1971	Total
National Energy Authority	-	20.00	60.00	56.00	-	136.00
1. Lam Dom Noi	-	20.00	60.00	56.00	-	136.00
Yanhee Electricity Authority	259.72	289.47	450.80	454.60	270.00	1,724.59
1. Yanhee 2 nd Stage	8.90	-	-	-	-	8.90
2. Yanhee 3 rd Stage	64.82	5.47	-	-	-	70.29
3. Yanhee 4 th Stage	76.00	28.00	-	-	-	104.00
4. North Bangkok Thermal	110.00	80.00	18.00	-	-	208.00
5. South Bangkok Thermal Plant	-	150.00	367.40	346.00	194.00	1,057.40
6. Nan River	-	26.00	65.40	108.60	76.00	276.00
Provincial Electricity Authority	96.00	29.00	17.50	17.50	17.50	177.50
1. Yanhee 2 nd Stage Distribution System	96.00	-	-	-	-	96.00
2. Yanhee 3 rd Stage Distribution System	-	11.50	-	-	-	11.50
3. North East Rural Electrification	-	17.50	17.50	17.50	17.50	70.00

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
North East Electricity Authority	7.18	5.30	-	-	-	12.48
1. Installation of 3 rd unit at Ubolratana Dam	7.18	5.30	-	-	-	12.48
Lignite Authority	30.15	36.78	42.00	100.00	-	208.93
1. Installation of 3 rd unit at Krabi	30.15	36.78	-	-	-	66.93
2. Construction of Thermal Power Plant in the Lower Southern Provinces	-	-	42.00	100.00	-	142.00
Grand Total	393.05	380.55	570.30	628.10	287.50	2,259.50

A 4 Second Plan Development Projects Financed by Foreign Grants - Energy Sector

(millions of baht)

Projects	1967	1968	1969	1970	1971	Total
Projects under the First Plan	23.50	61.30	0.40	-	-	85.20
1. Electric power demand survey and plans	2.00	-	-	-	-	2.00
2. Lower Mekong Basin reconnaissance	18.20	60.50	-	-	-	78.70
3. North East Rural Electrification	0.80	-	-	-	-	0.80
4. Electrician Training Centre	1.30	0.80	0.40	-	-	2.50
5. Krabi Thermal Plant	1.20	-	-	-	-	1.20
Project under the Second Plan	26.50	3.70	64.60	75.00	75.00	244.80
1. Lower Mekong Basin Development (including Pa Mong Project)						200.00
2. Water power sources, survey and statistics)						
3. North East Rural Electrification)						44.80
4. Improvement of administrative machinery of Electricity Authorities)						
Total	50.00	65.00	65.00	75.00	75.00	330.00

A 5 Second Plan Development Projects Financed by State Enterprises Own Resources - Energy Sector

(millions of baht)

Government Agency Project	1967	1968	1969	1970	1971	total
National Energy Authority	2.23	0.87	0.35	0.36	0.38	4.19
1. Electrician Training Centre	2.23	0.87	0.35	0.36	0.38	4.19
Yanhee Electricity Authority	118.91	246.99	208.16	152.20	197.70	923.96
1. Yanhee 3 rd Stage	24.11	56.21	15.30	8.20	6.30	110.12
2. Yanhee 4 th Stage	71.65	112.98	80.86	-	-	265.49
3. Nan River	-	14.20	14.40	27.00	30.40	86.00
4. South Bangkok Thermal Plant	17.00	10.00	22.60	97.00	116.00	262.60
5. Kaeng Rieng	6.15	13.60	20.00	-	-	39.75
6. Interconnection Systems	-	40.00	55.00	20.00	45.00	160.00
Metropolitan Electricity Authority	38.00	15.00	4.00	9.00	8.00	74.00
1. Expanding Distribution System	38.00	15.00	4.00	9.00	8.00	74.00

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
Provincial Electricity Authority	1.73	-	0.50	-	-	2.23
1. Nam Pung Distribution System	1.73	-	-	-	-	1.73
2. Improvement of Distribution System in the Lower Southern Provinces	-	-	0.50	-	-	0.50
Grand Total	160.87	262.86	213.01	161.56	206.08	1,004.38

CHAPTER XIII

DEVELOPMENT OF COMMERCE AND SERVICES

1. The development of commerce in Thailand is an important factor in raising the standard of living of the people, in generating revenue for the government, and in accelerating the growth of the economy as a whole. Since Thailand is still basically an agricultural economy, domestic consumption and the export of agricultural products are important to the economic welfare of the country. In this respect, an efficient and freely functioning commercial system, with equitable treatment for those who are engaged in the production and distribution of goods and services, is necessarily a primary force in the economic development of the country.

2. At present there are approximately 20,300 registered business firms in the country. The rate of increase in number has been on the average about 9% per annum. In addition to the registered firms, there are numerous unregistered business establishments in the Bangkok-Thon Buri area and the provinces. Most of these are small retailers, and research is being conducted to obtain reliable data and information on them. The rate of growth in the number of firms is expected to continue. The government intends actively to promote the development of an efficient commercial system, so as to facilitate the flow and the exchange of goods within the domestic market and as exports to overseas markets. Encouragement will also be given to greater participation by Thai nationals in commercial and service activities.

3. The growth of external trade has been phenomenal during the First Plan period. From 1961 to 1965, exports increased from 9,997 to 12,941 million baht and imports from 10,287 to 16,185 million baht. Equipment and other types of capital items accounted for over one fourth of total import value. This relatively large percentage reflects the dependence of capital formation on imports. Chapter Five explains that the rapid increase and the absolute size of capital goods imports have not created balance of payments problems because of the increased receipts from invisible items and the inflow of private capital and foreign assistance.

4. The services sector has experienced a rapid rate of growth in the past few years. Most of the activities in this sector are undertaken by private efforts and initiative. In consultation with the private sector, the government will seek to assist the development of this sector so as to ensure steady growth and to promote healthy competition within the sector and vis-a-vis other sectors.

Objectives

Policy Objectives

5. The Government will seek to create an orderly and efficient commercial system and to promote healthy competition so as to enable the commercial sector to serve the public interest more fully. Subsidiary objectives are to promote exports and to encourage wider participation by Thai nationals in commercial and service activities. To achieve these objectives, the government will:

(i) Promote healthy and orderly competition in private commercial activities, so as to secure equitable treatment for the producers, the distributors and the consumers.

(ii) Discourage monopolistic trade practices and cartels which are contrary to the best interests of producers or consumers.

(iii) Develop and promote export trade so as to achieve growth in terms of export volume and value, as well as diversification of export products.

(iv) Maintain price stability for both industrial and consumer goods, so as to prevent harmful increases in the cost of living.

(v) Support and stabilize the domestic price level of important export commodities, such as rice, and other agricultural and industrial products, in order to provide equitable treatment for the producers, the distributors, and the consumers of the country.

(vi) Encourage Thai nationals to participate more fully in commercial and service activities by designing new and more effective measures than in the past.

(vii) Issue and enforce standard and quality specifications for import and export products.

(viii) Promote the tourist industry in Thailand.

(ix) Encourage private initiative and employment in the service sector.

Export Targets

6. Marketing targets for the principal agricultural and industrial exports are as presented in Table 1 and discussed in the following paragraphs.

7. Rice: Rice exports are expected to increase over 30% during the Plan period, rising from 1.9 million metric tons in 1965 to 2.6 million metric tons in 1971. If the export price is stable, the value of rice exports will rise from 4,370 million baht in 1965 to 5,750 million baht in 1971. If renovation of the generally old and inefficient mills is effected and if modern rice mills are built in sufficient number then it is expected that the quality of rice available for export will be significantly improved, yielding higher prices in the overseas markets.

8. Rubber: The target of rubber exports represents only a slight increase over the 1965 figure, reflecting substantial increases in domestic consumption and international competition from synthetics and other rubber substitutes. The effects of the rubber replanting programme, initiated during the First Plan, will not become evident until after 1971.

9. Maize: The target volume of exports for 1971 is 1,300,000 metric tons, reflecting an increase of 60.0% over the 1965 volume. The large increase is a result of an expected expansion in production capacity, coupled with stronger demand in the export market.

10. Sorghum: Sorghum exports are expected to jump from 55,000 tons, valued at 62 million baht in 1965 to 250,000 tons, valued at 280 million baht in 1971. The recent increase in foreign demand is expected to continue as a strong stimulant to export sales.

11. Tapioca: The 1971 target of tapioca exports in all their forms-chips, flour and dry tapioca-represents a 7% increase over the 732,000 tons exported in 1965. Value of tapioca exports is expected to rise from 686 to 729 million baht during this period.

Table 1

1971 Export Targets for the Major Agricultural and Industrial Products

(in thousands)

Products		Estimates for 1971			1965	Changes in
		Production	Domestic Consumption	Export Volume	Export Volume	Export Volume
Agricultural Products						
Paddy	metric tons	13,700	9,900	3,800	2,900	900
Rubber	"	250	15	240	211	29
Maize	"	1,500	100	1,300	812	488
Sorghum	"	300	50	250	55	195
Tapioca Products	"	1,000	218	782	732	50
Kenaf and Jute	"	500	50	450	322	128
Tobacco Leaves (commercial grade)	"	88	78	10	6	4
Teak	cubic metres	161	114	47	45	2
Yang	"	580	480	100	59	41
Industrial Products						
Tin Ore	metric tons	32	2	30	20	10
Raw Sugar	"	270	240	30	84	54
Cement	"	2,800	2,400	400	104	296
Silk	yards	650	50	600	542	58

12. Kenaf: The 1971 export target for kenaf is 450,000 metric tons, valued at 1,574 million baht, compared with the 1965 export volume of 322,000 tons valued at 1,121 million baht. This represents a lower rate of growth than achieved prior to 1965. The potential for achieving more rapid growth can be realized only if more intensive efforts are focused on the expansion of production and promotion of exports.

13. Teak: Although foreign demand for Thai teak continues to be strong, domestic output is limited. Teak exports in 1965 amounted to 45,172 cubic metres or, in terms of value, 201 million baht. The export volume for 1971 is estimated at 47,000 cubic metres which, at 1965 prices, will earn 209 million baht in foreign exchange earnings.

14. Tin: The world demand for tin is expected to continue to exert pressure on the limited supply. Therefore, the export targets for 1971 are set at 30,000 tons of tin ore. (Exclude the rest).

15. Raw Sugar: The low target for sugar exports of 30,000 tons reflects the government's decision to terminate the sugar subsidy starting in 1966. Of the 1965 exports of 84,200 tons, 69,200 tons received a government subsidy. The 1971 target can be surpassed only if improved productivity can be realized at the farm and the factory levels in order to make the cost structure move competitive vis-a-vis world standards.

16. Cement: Cement exports in 1965 equalled 104,301 metric tons or 41 million baht in value. Production capacity of cement and cement products will be increased during the Second Plan period and, although domestic consumption is rising, the export surplus is estimated at 40,000 tons for 1971.

Development of Commerce

17. Total government expenditures on the development of commerce during the Second Plan period will amount to 180 million baht, financed entirely from the government budget; see Appendix I. Programmes will be implemented for market expansion, market research, and price stabilization.

18. In a programme of market expansion, the Government will:

(i) Study and analyze domestic and foreign market situations in order to design measures to assist domestic producers in the marketing of their products. Special efforts will be made to expand the volume and value of exports in new overseas markets. Furthermore, marketing advisory services will be made available to agricultural and industrial producers.

(ii) Promote consumer preference for Thai products in the domestic and overseas markets by means of participation in domestic and international trade exhibitions and by sending trade missions abroad.

(iii) Promote the export of Thai products by organizing an efficient export system and by discouraging competitive price cutting among exporters when it is contrary to the best interests of the country. Exporters will be encouraged to meet their export commitments, and quality standards will be specified and maintained.

(iv) Encourage Thai nationals to participate more effectively in commerce through the provision of educational facilities in business administration and marketing advisory services.

(v) Improve the marketing system so as to give agricultural producers a fair share of the retail price paid by the consumers.

(vi) Encourage the establishment of an efficient warehousing system throughout the country in order to reduce the costs of distribution.

19. In a programme of market research and forecasting, the Government will provide technical assistance to the nation's marketing system by conducting market studies of the major domestic products. Marketing facts and intelligence will be made available to producers and distributors so as to enable them to make their business decisions on as sound a basis as possible.

20. The objective of the price support programme is to stabilize the prices of basic agricultural commodities, such as rice, so as to benefit both producers and consumers. At the same time, the Government will improve the wholesale and retail price indices as well as the cost of living index, in order to assist the formulation of economic policy and the consideration of price stabilization measures.

Development of Services and Construction

Private Transport Services

21. An efficient transport system is one of the most important conditions of economic development because it so critically affects both production and marketing costs by serving as the vital link between the suppliers, the producers, and the consumers. Private transport in Thailand comprises road and water transport of goods and passengers. Railways, harbour and air transport facilities are state enterprises. Among the various modes of transportation, road transport is by far the most important both in terms of freight and passengers. During the Second Plan period, the value added in transport sector, both public and private, is expected to grow at 11% per annum, which is considerably higher than the 8.8% annual growth rate achieved from 1961 to 1965. Imports of transport equipment are expected to total 11,000 million baht during the Second Plan, almost double the amount of 6,200 million baht during the 1961-1965 period.

22. In spite of the substantial growth achieved during the First Plan period, private transport in Thailand remains basically inefficient. Lack of management skills and inadequate maintenance facilities contribute to the high cost of operations and low returns on investment. In addition, government agencies which are responsible for the regulation and the promotion of private transport are handicapped by the lack of adequate data and other information necessary for effective discharge of their duty. In order to overcome these deficiencies, the government will implement programmes to provide the nation with efficient and dependable transport service.

23. The Government will intensify research efforts on private land and water transport. Particular attention will be paid to the study of freight and passenger movements, freight costs and rates. Based on the detailed information and conclusions of these studies, the Government will undertake a programme to coordinate land and water transport. Facilities for freight handling at various regional transport centres will be improved. Encouragement will be given to the mechanization of

freight handling and modern warehousing facilities, as well as the adoption of advances in containerization technology. The government will institute a programme to improve the operational efficiency of the state-owned transport enterprises and to assure coordination of their services with private sector so as to avoid unfair competition. At the Port of Bangkok the Government will encourage the expansion and modernization of existing freight handing and warehousing facilities, although a second deepwater port is necessary as a longer term solution to the serious congestion there.

Construction

24. The construction sector has been one of the growth sectors of the Thai economy. The continuing expansion in construction activity will have beneficial repercussions on construction-related industries, such as construction materials producers. In addition, employment opportunities in construction work are expected to increase substantially, resulting in a construction labour force of 160,000 persons in 1971; this represents an annual rate of increase of 8.0% from the 1966 base of 110,000 persons. Construction is the largest component of Thailand's capital formation, accounting for about half of the gross domestic capital formation of the country during the First Plan period. During the Second Plan, total government construction will amount to 25,800 million baht. Since most of the government construction will be undertaken by private contractors through open bidding, the Government expenditures on construction will directly benefit the private construction industry.

25. The 4,000 firms engaged in construction activity are mostly small establishments with inadequate financing and management. One of the industry's primary problems is in the field of finance. Commercial banks usually demand heavy collateral for their loans and other intitutional lenders are not sufficiently developed to supply the needs of the construction industry. Undercapitalized and poorly equipped firms have often been awarded contracts in excess of their capacity because the bidding requirements have been too imprecise. Additional problems relate to the adequacy of supply of construction materials and the need for

standard specifications. During the final period of the First Plan, an upsurge in construction activities caused serious shortages of two basic construction materials, timber and cement. The cement shortage has been alleviated, but timber is expected to be in short supply during the entire Second Plan period. There has also been an inadequate supply of construction engineers, technicians and other types of skilled construction workers. Finally, standard specifications for construction materials are still deficient and contractors, construction engineers and architects have frequently tolerated professional malpractices. In order to overcome these problems, the Government will implement programmes in the field of construction finance, standards and construction technology, and constructions materials.

26. Construction Finance: There are two types of construction finance which must be considered: the demand of the contractors for working capital and the demand for mortgage financing. The Government intends to encourage the various financial institutions to play a larger role in construction financing and it will assist by easing the working capital requirements of the contractors by facilitating the release of funds for government construction projects.

27. Standards and Construction Technology: The Government will consider the imposition of new regulations and controls on construction practices in order to realize professional standards and to encourage the use of new technology in the construction industry. The objective is to create strong and reputable professional associations related to construction activities, such as the Contractors Association of Thailand, the Siam Architects' Association, and the Engineers' Association of Thailand. If required, legislation will be introduced to set professional standards and to control the practices of the members of these professions. In addition, training will be conducted to produce skilled manpower in sufficient number for the construction industry.

28. Construction Materials: Encouragement will be given to the establishment of new factories producing construction materials, as well as the expansion and modernization of existing facilities. The objective

is to ensure an adequate supply of the basic construction materials for the country's rapidly increasing demand. The Government also intends to determine and enforce standard specifications of construction materials for the mutual benefit of the material producers, the architects, and the owners of buildings and other structures.

Tourism

29. Tourism has become increasingly important as an economic activity and as a foreign exchange earner. In 1965, tourism accounted for over 500 million baht in foreign exchange earnings, ranking seventh behind the main commodity exports; see Table 2

Table 2

Growth of Tourism - First Plan and Second Plan Targets

(millions of baht)

Year	Number of Tourists			Foreign Exchange Earnings from Tourism		
	Total	From Overseas	From Neighbouring Countries	Total	From Overseas	From Neighbouring Countries
1961	107,754	107,754	-	250	250	-
1962	130,809	130,809	-	310	310	-
1963	195,076	134,271	60,805	394	282	112
1964	211,924	158,588	53,336	430	332	98
1965	244,000	175,192	68,808	522	384	138
1966	281,000	201,000	80,000	640	470	170
Target						
1967	322,000	241,000	81,000	654	506	148
1968	371,000	278,000	93,000	752	582	170
1969	426,000	319,000	107,000	866	670	196
1970	490,000	367,000	123,000	966	770	226
1971	564,000	422,000	142,000	1,148	886	262

30. In order to promote tourism, the Government will:

(i) Intensify promotion and advertising activities in foreign countries with the cooperation of the private sector, especially the international airlines.

(ii) Review and revise government regulations pertaining to tourism so as to provide maximum convenience for foreign visitors, particularly in simplifying the process of entering and leaving the country.

Problems and Future Outlook

31. Policies and measures for the development of Thailand's commerce and services are based on the desire to encourage the growth of a strong and healthy free enterprise system. The Government's role is not one of regulation, but of assistance to the private sector, particularly in the provision of technical assistance and the solution of critical problems and bottlenecks in commerce and services. The key problems and the proposed solutions are as follow:

32. The existing disorder and inefficiency in Thailand's commercial system have resulted in unnecessarily high marketing and production costs. This facilitates the exploitation of rural agricultural producers by the middlemen and commodity speculators, as well as creating economic losses for the country as a whole. To improve the functioning of the marketing system, the Government will take the necessary measures, including the revision of existing laws and regulations and the introduction of new legislation in fields, such as that of company law, where there is lack of coverage. Reorganization of government agencies responsible for the administration of commercial laws and for the collection and distribution of commercial intelligence will also be effected, particularly at the provincial and regional level.

33. Quality control and improved standardization of production will strengthen the reputation of Thai exports in foreign market. During the Second Plan the Government will take steps to implement suitable export regulations in order to assure better quality of export products.

34. Lack of capital and the inability to obtain prime locations for retail activities have so far been the main obstacles to a more active participation by Thai nationals in commercial occupations. The Government will coordinate inter-ministerial efforts to overcome this problem.

35. Coordination among government agencies at the planning and the operations levels will become increasingly necessary in order to give

effect to policies which cut across ministerial responsibilities; for example, the policy to encourage farmers to take a more active role in the marketing of their products will directly involve the Ministry of Agriculture and the Ministry of Economic Affairs.

36. In a longer perspective, the growth of the commerce and service sectors will be inevitably tied to the growth of the economy as a whole. As the measures to eliminate monopolistic and other unhealthy trade practices become more effective, an orderly and competitive commercial system will become a prime force in economic development.

APPENDIX A

Second Plan Development Project Financeed by Budgetary Appropriations - Commerce and Services Sector

(millions of baht)

Projects	1967	1968	1969	1970	1971	Total
Ministry of Economic Affairs.						
1. Export Promotion	29.2	18.5	18.1	18.1	18.0	101.9
a. Organization of the export system	-	1.5	1.5	1.5	1.5	6.0
b. Protection and expansion of overseas markets	-	1.9	2.0	2.0	1.9	7.8
c. Promotion of the export of manufactured products	-	2.5	2.0	2.0	2.0	8.5
d. Internal and external trade exhibitions	29.2[1]	12.6	12.6	12.6	12.6	79.6
2. Marketing Research	-	3.0	2.2	2.4	2.6	10.2
3. Promotion of Thai Nationals in Commercial Activities	2.2	7.0	6.0	6.0	6.0	27.2
a. Loans for commercial activities	2.2	5.0	5.0	5.0	5.0	22.2
b. Marketing service for small commercial establishments	-	2.0	1.0	1.0	1.0	5.0
4. Price Support for Paddy[2]	-	10.0	10.0	10.0	10.0	40.0
Total	31.4	38.5	36.3	36.5	36.6	179.3

[1] Including 21.1 million baht for First Asian International Trade Fair.

[2] May be expended on farmers' assistance.

CHAPTER XIV

COMMUNITY FACILITIES AND SOCIAL WELFARE

1. While implementation of the First Plan appreciably improved the economic conditions of the country, success depends upon the people's sense of social responsibility and participation in the development process. Economic development is creating larger urban agglomerations, especially the Bangkok - Thon Buri area, and large numbers of people living together naturally create difficult social problems, which can impede the development of the country unless social development proceeds in close harmony with economic development. Urbanization will continue to create requirements for housing, waterworks and other utilities and it is the responsibility of the Government to provide sufficient community facilities for the public welfare. In addition the Government has recognized the importance of development in the fields of community facilities and public welfare and it has supported these objectives in the First Plan.

Progress Under the First Plan

2. Housing : The major housing projects during the First Plan were the construction of flats for low - income families and a slum clearance programme in the metropolitan area. The Government has also been studying the value of the unification of different government housing authorities for the purpose of increasing efficiency and flexibility of administration. Housing projects for middle income families were also constructed. Most of the government housing projects were constructed in Bangkok because of the urgent needs of a burgeoning population, caused mainly by the migration from the rural areas to the metropolitan centre.

3. Metropolitan Waterworks : The Government improved and expanded the Bangkok - Thon Buri waterworks. The capacity of the treatment plant was increased from 175,000 cubic metres per day to approximately 382,000 cubic metres per day.

4. Provincial Waterworks : Projects have been successfully implemented to substantially expand the number of provincial water works, to improve existing plants, and study new sources of raw water supply.

5. Rural water supply : The shortage of clean, potable water is one of the critical problems in the rural areas. During the course of the

First Plan, various government agencies have tried to overcome this problem. 1,810 artisian wells were drilled and a number of village water supply units were established. A rural water supply project was formulated and ready for operation during the Plan period.

6. Community development: Community development programmes expanded rapidly during the Plan period to cover 5,950 villages with a population of 5,842,000 persons. The Community Development Department sent out 866 community development workers to advise and guide the rural population on different occupations and to act as a link between the people and the governmental specialists. The government also set up two community development technical assistance centres, at Ubon Ratchathani and Yala, and a regional community development centre at Udon Thani.

7. Self-help land settlement schemes: Ten land settlements were opened during the Plan period, the most important of which were in the southern border provinces. People also have been resettled from the reservoir areas of the newly built dams. To render assistance to the hilltribe population which numbers about 300,000, land settlements were established in the North and the Northeast of the country, a hilltribe research centre was started and mobile units were sent to many hilltribe villages. During the First Plan period 3.3 million rai of small plots and 30,000 rai of large plots of land were allocated for agricultural purposes.

8. Social welfare and labour: Social welfare programmes undertaken by the Department of Public Welfare involved occupational promotion for underprivileged groups in the society, such as the aged, maladjusted youth, the disabled, drug addicts, beggars and prostitutes. A committee was set up to control and suppress the narcotics trade and it has established a rehabilitation centre for drug addicts. In the field of labour, employment service and labour welfare have been the main activities. Several new agencies were formed to deal with the rapidly increasing labour force. The Labour Division under the Department of Public Welfare was elevated to departmental status. A Manpower Planning Office was formed within the National Economic Development Board to study and plan on educational matters at all levels and to provide guidelines for the formulation of the Second Plan.

Objectives

Policy Objectives

9. The general policy of this sector is to promote the welfare of the population by improving the social and physical environment, especially of the poorer classes in accord with principles of social equity. The population in general should be apprised of their duties and responsibilities, both to themselves and to the country as a whole. It is the policy of the Government to provide adequate public utilities to all communities. Allthough the accomplishment of this objective is beyond the capacity of a single plan period, the long range programme has to be initiated. In order to realize these policy goals, the Government has been guided by the following objectives in preparing the Second Plan:

(i) To provide and expand public utilities for the rural population, particularly clean potable water for consumption purposes and rural roads to bring remote areas into the social and economic structure of the nation.

(ii) To promote appropriate and useful occupations in the rural areas through community development methods of technical training.

(iii) To foster leadership characteristics in the youth and eliminate juvenile delinquency.

(iv) To render service and provide opportunity to the disabled both through government and private organizations.

(v) To encourage the establishment of fair wage rates for workers and employees, safe and secure working conditions, and peaceful labour - management relations.

(vi) To relieve urban overpopulation and the consequent social problems by planning for future city expansion.

(vii) To provide adequate and standardized public utilities for Bangkok and the provinces.

(viii) To promote new urban centres outside of the Bangkok-Thon Buri metropolitan area and create additional commercial, industrial and service centres in the provinces.

Targets

10. The major physical targets of the sector of Community Facilities and Social Welfare during the Plan period are given below:

Projects	Targets
1. Rural water supply	30,000 villages
2. Provision of land through self-help land settlements	5,000 families in an area of 125,000 rai
3. Community development	To cover 60% of the Northeast and all the provinces in the South, and other areas
4. Low income family housing	3,800 families
5. Road construction and improvement in the metropolitan area	Construction and improvement of 25 major roads and 350 lanes. Construction of 2 new bridges across the Chao Phya River joining Bangkok and Thon Buri
6. Improvement of the metropolitan waterworks system	Increasing the daily capacity by 200,000 cubic metres
7. Provincial waterworks	Construction of water supply systems in 225 places, adding 260,000 cubic metres to the existing daily capacity

Development Projects

11. Planned expenditures of the Community Facilities and Public Welfare Sector are 10,300 million baht, consisting of 3,400 from the central government budget, 1,650 million baht from foreign loans, 1,100 million baht from foreign grants, 2,300 million baht from the revenue of local governments and 1,800 million baht in the form of a central government development subsidy to the local governments. In addition to this, private social organizations are expected to spend about 60 million baht. The project details are shown in Appendix A. The 54 projects can be classified into four categories: rural development, urban development, social welfare and labour.

Rural development

12. Provision of potable water supply to the rural villages: Clean water will be provided for consumption purposes to 30,000 villages out of a total of 50,000 in the entire country. High priority will be given to the Northeast region. Provision of water will be in different forms such as deep or shallow wells, and the work will be undertaken by many government agencies, i.e., the Department of Public Health, the Department of Mineral Resources, the Department of Public and Municipal Works and the different local government authorities. A central coordinating committee has been appointed.

13. Self-help land settlements: At present there are 48 settlements in 34 provinces, covering an area of approximately 5.4 million rai. One thousand families will be resettled annually and a total of 125,000 rai of land will be allotted to these families during the Plan period. In addition, there will be improvements of the public utilities, roads, school buildings, water wells, health stations and other public services of the settlements. The Department of Public Welfare will also provide land settlements for the people moved from the reservoir areas above the newly constructed dams, such as at the Nam Pong, Lam Takong, Nan River, and Lam Pao projects. Expansion of the settlements in the southern border area will also be undertaken.

14. People's irrigation: The Department of Local Administration will construct small irrigation projects to support agricultural extension programmes in conjunction with the major irrigation systems. These are to be conducted on the basis of counterpart contributions from the local population. A People's Irrigation Association will be established in every district.

15. Rural road programmes: An annual budget will be provided to assist the country administration in the construction of village roads, both to connect the villages themselves and to link the villages to the market place. Village roads, apart from their economic benefits, have administrative and social significance. Moreover, the Accelerated Rural Development Project in 14 remote provinces in the Northeast and the North will undertake similar rural road construction work with the objective of

completing about 100 kilometres annually.

16. Occupational promotion programme: The primary objective of the occupational promotion programme is the encouragement of double cropping of rice, in cooperation with the Rice Department, the Land Development Department, the Royal Irrigation Department and the Ministry of Agriculture. This programme is classified into sub-projects: research and evaluation, irrigation and the provision of water, credit systems, training, extension and the establishment of vocational associations.

17. Community development: This project is designed to assist the rural population in adapting to the changing rural environment and to cooperate in bettering their conditions. Local development projects will be initiated by the people themselves and their implementation will be effected in cooperation with local government counterparts. the Department of Community Development plans to cover 60% of the Northeast and all the border provinces of the South, as well as embarking on a programme in the North, particularly in the Accelerated Rural Development areas. Studies and research on rural village conditions will be conducted. Also training programmes for community development workers, village and community leaders and other groups will be held to inform them about the objectives of community development and ways to improve rural living standards.

18. Hilltribes development programmes: Present activities in the field of hilltribe settlements, hilltribe mobile development units and occupational promotion programmes will be continued and expanded. The Hilltribe Research Centre in Chiang Mai will render technical assistance for these programmes.

Urban Development

19. Low-income family housing: At present the population of the Bangkok metropolitan area is increasing at a rate of about 5.5% per annum, resulting in severe social and housing problems. The cost of land and construction have been increasing gradually and rents are so high that low-income families can not afford them. They are therefore forced to build sub-standard and crowded huts on the outskirts of the cities, thus creating slums along the edges of the metropolitan area. It is the

responsibility of the government to clear slums and provide adequate housing for their occupants. During the Plan period, the government will build at least 3,800 units for low-income families in the form of multi-story apartments.

20. Bangkok and Thon Buri drainage, sewerage and flood protection system: Due to the fact that the Bangkok - Thon Buri area is situated on the low delta of the Chao Phraya River, there is a particularly acute problem of sewerage and drainage. Flooding causes public health and sanitation problems. The government has, therefore, employed the services of a consulting engineering firm to make surveys and prepare a plan for the drainage, sewerage and flood protection of the metropolitan area. The design phase will occur during the first part of the Plan and the construction work is expected to be started within the Plan period.

21. Bangkok and Thon Buri road construction and improvement programme: This is a 10 year plan with 3 major objectives: to alleviate present traffic problems, to anticipate the future expansion of the city and to facilitate communication with neighboring cities, i.e., provide a free flow of inter-city traffic without requiring passage through the heart of Bangkok. Apart from the construction and improvement of major roads, there is a programme for the construction and improvement of smaller lanes. Twenty five major arteries will be constructed and improved during the Plan period. Two more bridges will be constructed across the Chao Phya River joining Bangkok and Thon Buri. Within 3 years street lighting will be available for all the main streets in Bangkok.

22. Metropolitan waterworks: There is still a general shortage of water supply in the Bangkok metropolitan area, particularly during the dry season. The Government has a project for increasing the capacity of the treatment plant by 700,000 cubic metres per day and for improving the distribution system. An engineering and economic study will be conducted to plan for needs 25 or 30 years in the future.

23. Provincial water supply: There are 125 waterworks in the municipalities and other communities throughout the country. The present population served is about 2.4 million and there are still some municipalities without a water supply system. The Department of Public

and Municipal Works therefore prepared a 10 year programme to solve the present shortages and to increase the capacity of the existing works. According to this programme, it is necessary to increase the total capacity by 520,000 cubic metres per day. This can be accomplished by increasing the efficiency of the existing systems, locating new sources of raw water, and constructing 450 additional waterworks. Half of the target is expected to be completed within the Second Plan period.

24. City planning: Orderly urban growth requires city planning. Land use must be classified according to economic and social criteria. During the five years, 50 comprehensive urban planning projects and about 1,200 special projects will be undertaken.

Social Welfare

25. Public welfare activities: Government activities in the field of social welfare will have the objectives of child and youth development, assistance to the poor and the crippled, and vocational training for the underprivileged.

26. Private welfare organizations: At present there are many private organizations with social welfare programmes. The Social Welfare Council of Thailand has 168 non-governmental organizations as members all over the country. Their programmes include surveys of the living conditions and the problems of poor families, poverty relief in the slum areas, research into the nutritional problems of children, assistance to orphans, construction of community service centres, rehabilitation and occupational promotion for the handicapped. Future projects will provide vocational training for the blind at Nontha-Buri, a youth training centre at Cholburi, service centres for crippled children in Bangkok and mobile units to service the crippled in the provinces.

27. The Red Cross: The Thai Red Cross has a plan to provide adequate supplies of blood for use of all over the country and to produce serum.

28. The National Youth Organization: The National Youth Organization plans to conduct research on the problems and requirements of youth. It will act as a centre for the coordination of public and private

activities concerning youth. Most of the work during the Plan period will consist of the promotion and interchange of information on youth activities and the organization of seminars and camp meetings for young people. The organization expects financial and technical assistance from abroad.

Labour

29. During the five year period of the Plan, there will be a substantial increase in the number of people seeking job opportunities, at the same time that shortages of many categories of skilled labour exist. The welfare and working conditions of the workers are still unsatisfactory and employer-employee relationships need improvement. To attempt to solve these problems, the Department of Labour will establish an employment service and counselling centres in 9 provinces; start programmes for vocational guidance, upgrading and training labour, protection and inspection; and design controls on the employment of women and children.

Major Problems and Long Range Projects

Rural Development

30. The efficient allocation of land is a major bottleneck to successful rural development efforts. There are currently several agencies responsible for land administration, land allocation, for instance, is under the jurisdiction of the Department of Public Welfare, Department of Land, Department of Land Development and the Department of Land Cooperatives. Practically all of these government agencies are undertaking activities of a similar nature without explicit policies to define the relative scope of their responsibilities. As a consequence, it is necessary to formulate a definite policy which will serve as a guideline for effective implementation and coordination of this work. There is also an urgent need for revision of the existing land codes to permit the farmers to realize the benefits of improved farming techniques and to prevent the accumulation of land for speculative purposes. Another major problem lies in the granting of land title deeds, since at present many of the land holders do not possess clear title of ownership. The nationwide granting of land title

deeds must be accelerated.

31. During recent years the construction of irrigation and power dams has always been accompanied by the establishment of new land settlement schemes for the people from the flooded reservoir areas, although there has been considerable reserved land available in the existing self-help settlements. The future policy should be to concentrate land allocation activities in the already established settlements. Necessary feasibility surveys and the provision of basic facilities should be completed before the opening of a new settlement. In addition, the construction of future dams should include due consideration to the problem of moving people from the reservoir areas.

Urban Development

32. The most critical problems in town planning are traffic congestion, population concentration in the slum areas, shortage of waterworks, and inadequate sewerage and drainage. In order to solve these problems, particularly in the Bangkok - Thon Buri area, and to cope with the emerging problems in other cities, the following measures should be taken:

(i) The City Planing Act Should be enacted and enforced without delay.

(ii) Necessary improvements should be made in the collection and structure of land taxes in order to prevent or reduce the purchasing and sale of land for speculative purposes, particularly in the metropolitan area.

(iii) Accelerate the adoption and implementation of the 10 year road improvement and construction project for Bangkok - Thon Buri.

(iv) The development of towns and cities should be under the responsibility of a single agency which should also administer low income housing programmes and slum clearance.

(v) Efforts should be directed towards acceleration of the water works programme in the metropolitan area and in the provinces where an adequate supply of water is still lacking.

Social Welfare

33. The wide range and complexity of social problems will grow simultaneously with the rapid development of the national economy. Undoubtedly the government has to shoulder the bulk of the social welfare responsibilities, both in terms of capital and manpower, but the upper income classes have an obligation to share in the responsibility. Directly or indirectly, the emergence of social problems is the consequence of the rapid growth of industry and trade. Therefore if various industries are able to cooperate closely with the government and private social welfare organizations and contribute financial assistance for education, housing and medical care, the problems will be considerably relieved. In any case, the government should provide whatever assistance possible, financial or otherwise, to private organizations so they can enlarge their activities in this field.

Labour

34. As the development of industry and services continues, the problems of labour welfare become increasingly important. Problems needing immediate attention are employment security, wage levels, housing services, and pensions. While developing solutions to these pressing needs, the government must examine the entire labour field in depth in preparation for broader programmes of social security and active trade unionism.

APPENDIX A

A1 Summary of Second Plan Development Expenditures by Financing Source - Community Facilities and Social Welfare Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
Government Budget						
a. Central Government	542.94	689.55	732.85	701.20	727.70	3,392.24
b. Local government	280.00	335.00	365.00	395.00	425.00	1,800.00
Foreign Loans	-	211.00	481.70	476.70	476.70	1,646.10
Foreign Grants	280.00	250.00	215.00	185.00	190.00	1,120.00
Local Government Revenue[1]	320.00	380.00	450.00	530.00	620.00	2,300.00
Total	1,422.94	1,863.55	2,244.45	2,258.00	2,439.40	10,258.24

[1] See details in Chapter 7.

A2 Second Plan Development Projects Financed by Budget Appropriations - Community Facilities and Social Welfare Sector.

(millions of baht)

Govenment Agency / Project	1967	1968	1969	1970	1971	Total
Ministry of Interior						
Department of Public Welfare	160.51	161.85	161.25	164.40	171.70	819.71
1. General land settlements	30.0	32.0	35.0	39.0	45.0	181.0
2. Demonstration and training centre at Pra Bat settlement	1.4	1.4	1.4	1.4	1.4	7.0

(millions of baht)

Govenment Agency / Project	1967	1968	1969	1970	1971	Total
3. Settlements for families in the flooded dam reservoirs						
1) Phumipol Dam at Hod	1.56	-	-	-	-	1.56
2) Nam Pong Dam, Kon Kaen	4.6	3.7	-	-	-	8.3
3) Lam Takong Dam, Nakhon Ratchasima	4.0	5.2	3.0	1.5	1.0	14.70
4) Nan River Dam	-	6.5	5.2	3.0	1.5	16.20
5) Lam Pao Dam	4.3	4.0	3.5	3.0	2.5	17.30
4. Settlements in the Southern border provinces	23.2	24.0	25.0	26.0	27.0	125.20
5. Dairy farm settlement	0.32	1.0	0.7	0.7	0.7	3.42
6. Hilltribe settlement	2.0	2.0	2.0	2.0	2.0	10.0
7. Hilltribe mobile units	3.59	6.0	7.0	8.0	9.0	33.59
8. Hilltribe Research Centre	0.7	0.7	0.7	0.7	0.7	3.5
9. Welfare of children and youth	19.0	22.0	22.0	23.0	23.0	109.30
10. Welfare for the aged	5.0	5.3	5.6	5.9	6.2	28.0
11. Welfare for the crippled	2.5	2.7	2.9	3.1	3.3	14.5
12. Welfare for the unsupported	6.5	6.8	7.7	7.4	7.9	36.3
13. Welfare for disaster victims	2.4	2.5	2.6	2.7	2.8	13.0
14. Promotion of social welfare service	2.0	1.7	2.0	1.7	2.0	9.4
15. Youth Centre	1.2	1.2	1.3	1.3	1.3	6.3
16. Community Service Centre	0.14	1.5	0.7	0.7	0.7	2.74
17. Dormitories for travellers and youth	0.8	0.2	0.2	0.2	0.2	1.60
18. Rehabilitation of prostitutes	6.0	3.70	3.85	4.0	4.0	21.55
19. Rehabilitation of mental patients	-	1.75	1.90	2.1	2.50	8.25
20. Housing for provincial government officers	2.0	2.0	2.0	2.0	2.0	10.0

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
21. Housing for low income families	37.0	25.0	25.0	25.0	25.0	137.0
Department of Local Administration	92.6	138.0	150.0	123.0	133.0	636.6
1. People's Irrigation	12.0	15.0	18.0	21.0	25.0	91.0
2. Rural roads	5.6	10.0	15.0	15.0	15.0	60.6
3. Occupational promotion (7 Subprojects)	5.0	8.0	12.0	17.0	23.0	65.0
4. Bangkok - Thon Buri road construction and improvement	50.0	50.0	50.0	50.0	50.0	250.0
5. Bridges across the Chao Phya River	-	35.0	35.0	-	-	70.0
6. Village clean water supply	20.0	20.0	20.0	20.0	20.0	100.0
7. Bangkok - Thon Buri drainage sewerage and flood protection	10.0	10.0	-	-	-	20.0
Department of Public and Municipal Works	166.2	256.3	259.1	159.1	159.1	1,199.8
1. Provincial water supply	115.0	125.0	125.0	125.0	125.0	615.0
2. Metropolitan waterworks	40.0	120.0	120.0	120.0	120.0	520.0
3. Village clean water supply (artesian wells)	6.3	6.3	9.1	9.1	9.1	39.9
4. Artisian well drilling	4.9	5.0	5.0	5.0	5.0	24.9
Department of Land	20.61	24.0	27.5	32.0	32.5	136.61
1. Allocation of small plots of land	4.1	4.5	4.5	4.5	4.5	22.10
2. Allocation of large plots (over 1,000 rai)	5.94	6.5	7.0	7.5	8.0	34.94
3. Aerial photo mapping for land titles	10.57	13,0	16.0	20.0	20.0	77.57
Department of Community Development	58.3	64.8	71.7	98.3	84.9	358.0
1. Research and evaluation	2.0	2.0	2,5	2.8	3.0	12.3

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
2. Opening of area coverage	-35.0	40.0	45.0	50.0	55.0	225.0
3. Training of community development workers	2.8	3.2	3.7	4.3	4.9	18.9
4. Extension service	1.3	1.4	1.5	1.5	1.5	7.2
5. Community development volunteers	1.4	2.0	2.5	3.0	3.5	12.4
6. Promotion of women, children and youth activities	0.9	0.9	1.0	1.0	1.1	4.9
7. Training programme for community leaders and development committees	0.7	0.8	0.9	1.0	1.1	4.5
8. Promotion of occupational groups	0.4	0.5	0.6	0.7	0.8	3.0
9. Community Development Technical Assistance Centres	13.8	14.0	14.0	14.0	14.0	69.8
Department of Labour	7.12	7.1	8.5	9.8	11.1	43.62
1. Employment service and occupational promotion	0.9	1.5	2.1	2.5	3.1	10.10
2. Occupational counselling	0.28	0.6	0.7	0.8	0.9	3.28
3. Occupational and labour training	2.33	3.9	4.2	4.5	4.8	19.73
4. Labour protection	0.61	1.1	1.5	2.0	2.3	7.51
5. Labour research and statistics	3.0	-	-	-	-	3.0
6. Upgrading training programmes						
City Planning Office	7.1	5.0	34.3	34.6	35.4	116.4
1. Comprehensive city plans	2.1	2.5	2.8	3.1	3.6	14.1
2. Special projects	0.7	0.8	0.9	1.0	1.1	4.5
3. Town development	4.3	1.7	30.6	30.5	30.7	97.8
Metropolitan Electricity Authority	20.5	20.5	20.5	-	-	61.5
1. Street lighting in the metropolitan area	20.5	20.5	20.5	-	-	61.5
Grand Total	542.94	688.55	732.85	701.2	725.7	3,392.24

A3 Second Plan Development Projects Financed by Foreign Loans - Community Facilities and Social Welfare Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
1. Construction of Bangkok-Thon Buri drainage, sewerage and flood protection systems	-	-	100.0	100.0	100.0	300.0
2. Village clean water supply	-	16.0	11.70	11.70	11.70	51.10
3. Construction of bridges across Chao Phya River	15.0	10.0	10.0	-	-	35.0
4. Metropolitan waterworks	-	20.2	180.0	180.0	180.0	560.0
5. Provincial waterworks	-	125.0	125.0	125.0	125.0	500.0
6. Low-income family housing projects	-	50.0	50.0	50.0	50.0	200.0
Total	15.0	221.0	476.7	466.7	466.7	1,646.1

A4 Second Plan Development Projects Financed by Foreign Grants-Community Facilities and Social Welfare Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
A. Continuing projects	275.5	244.9	11.7	-	-	502.1
1. Rural roads constructed by A.R.D.	209.0	164.0	-	-	-	373.0
2. Hilltribe development	1.2	-	-	-	-	1.2
3. Community development	5.4	2.7	-	-	-	8.1
4. Village radio communication	6.3	9.9	-	-	-	16.2
5. Mobile Development Units	17.8	17.8	-	-	-	35.6
6. ARD training	33.4	19.9	11.7	-	-	65.0
7. Pra Putta Bat land settlement	1.9	0.6	-	-	-	2.5
8. Survey and granting of land title deeds	0.8	-	-	-	-	0.8

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
B. New and expanded Projects (i)	4.5	35.1	203.3	185.0	190.0	617.9
Grand Total	280.0	250.0	215.0	185.0	190.0	1,120.0

(i) These are for the following projects: A.R.D. rural roads, community dvelopment, mobile development units, hilltribe assistance programmes, Land settlement schemes, land allocation, provision of clean water, welfare assistance, upgrade training of labour.

CHAPTER XV

PUBLIC HEALTH

1. Public health is an important activity of the Government's programme to develop the country's human resources. Its objective is to promote better health of the individual and family, through appropriate and adequate medical care services and health measures.

Progress under the First Plan

2. During the period of the First Plan, the development of public health has been satisfactory according to the planned targets, although adequate public health services are a continuing and long term objective. The achievements may be summarized in the field of curative medicine and preventive medicine.

3. In the field of curative medicine, 3 central and 83 local hospitals have been improved and expanded and a new hospital was constructed in Ubon Ratchathani. Three provincial hospitals were equipped with modern medical facilities to serve as centres for the regions in which they are situated. In rural areas, there was an increase of 2,500 hospital beds, 68 doctors, and 299 nurses; this expansion improved the ratio of hospital beds per person from 1 : 3700 in 1963 to 1 : 2,800 in 1966 thus successfully achieving the Plan target. In urban areas, the number of beds in public hospitals was also raised from 4,466 in 1963 to 5,056 in 1966 and the ratio of hospital beds per person was improved from 1 : 2,300 in 1963 to 1 : 2,150 in 1966. In consequence, there was also an improvement in the overall proportion between doctors and nurses and the number of hospital beds; it was 1 : 2.5 : 12.3 in 1963 as compared with 1 : 2.7 : 12 in 1966.

4. In the field of preventive medicine, about 8,400 villages had been benefited by improved environmental sanitation and 217 First-class and 281 Second-class Health Centres and 1,389 Midwife Centres had been established by the end of the Plan period. The programme of malaria eradication, which is one of the most important public health projects, has reduced the death rate per 100,000 population from 24.5 in 1961 to 18.2 in 1964. The death rate from tuberculosis was also reduced from 31.5 in 1961 to 29.1 in 1964. Regarding the control of dangerous infectious deseases such as cholera, smallpox, and yaws, the measures

undertaken were so effective that they no longer pose a public health problem in any serious manner.

Objectives

Policy Objectives

5. During the period of the Second Plan, the policy of accelerating the progress in public health for the betterment of the health and welfare of the people in all areas of the Kingdom will involve the following objectives:

(i) To accelerate the promotion and expansion of public health services to cover all areas of the country and particularly remote rural areas hampered by inconvenient communications.

(ii) To expand and raise the quality of medical care service by improving both urban and local hospitals; increasing the number of doctors, nurses, and medical facilities; and making greater provision of mobile units.

(iii) To support research work in the medical sciences, especially in the field of diagnosis and pathological analysis; the study and analysis of foods and drugs, water and drinks; preventive measures for avoiding the dangers from radioactive substances; and the production and control of standard medicines.

Public Health Targets

6. The Plan targets for the Public Health Sector are shown in Tables 1 and 2.

Table 1 (1)

Public Health Targets for the Second Plan

Item	1966	1967	1968	1969	1970	1971	Total Increase
Doctors .	4,109	4,359	4,609	4,859	5,129	5,444	1,335
Nurses	11,885	12,555	13,260	14,065	14,880	15,715	3,830
Midwives	1,400	1,700	2,030	2,390	2,800	3,310	1,910
Hospital Beds	15,400	16,300	17,300	18,300	19,300	20,300	4,900
First - class Health Centres	217	227	237	247	257	267	50
Second - class Health Centres	881	991	1,101	1,211	1,321	1,431	550
Midwife Centres	1,389	1,459	1,529	1,599	1,669	1,739	350

Table 2

Second Plan Target Relationships between Population, Doctors, Nurses and Hospital Beds(1)

	1966	1967	1968	1969	1970	1971
Doctor : Population	1:8,000	1:7,800	1:7,600	1:7,500	1:7,300	1:7,000
Nurse : Population	1:2,800	1:2,700	1:2,650	1:2,600	1:2,550	1:2,500
Bed : Population	1:2,150	1:2,100	1:2,050	1:2,000	1:1,950	1:1,900
Doctor : Nurse : Bed	1:2.7:12	1:2.8:12	1:2.9:12	1:3:12	1:3.1:12	1:3.2:12

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(1) Hospital beds include only beds in public civilian hospitals.

Public Health Development Projects

7. Expenditures for public health development projects during the Second Plan period will be 2,572 million baht, consisting of 1,801 million from budgetary appropriations, 755 million from external assistance, and 16 million from the revenues of the state enterprises; see Appendix A. The major portion of this expenditure, 86 % of the total, will be incurred on public health projects in rural areas of the country. There are 30 development projects, 22 of which are continuing projects from the First Plan.

Health and Sanitation

8. Local health development: This project was started in 1960 with the training of health officers in various provinces to initiate the task of basic health development, namely, the provision of safe drinking water, the proper disposal of refuse and excreta and environmental sanitation. At present, nearly 8,400 villages, with a total population of about 5,000,000 have received benefits under this project, and about 7,775 water wells and storage units have been provided. During the Plan, the scope of this project will be widened to cover an additional 12,000 villages. The programme will concentrate on general sanitary measures, the distribution of medicines, the digging of water wells, the installation of school water supplies, with special emphasis on rural areas along the borders of the country.

9. Village water supply: The Health Department has been engaged for some time in providing safe water under the Rural Health Development Programme to the Northeast. To accelerate this work, a new village water supply project will be implemented under the Second Plan. The project requires cooperation from various government agencies in the field. The installation of 50 village water supply units per year is set as a target by the Health Department; a target of an additional 100 village water supply units per year is set under the Accelerated Rural Development Programme.

10. The improvement and expansion of Health Centres: There were altogether 217 First - class and 881 Second - class Health Centres in Thailand in 1966. Ten Second - class Health Centres will be elevated per year to First -

class Centres and 30 new Second - class Centres will be established per year. In addition 90 Midwife Centres will be developed as Second - class Health Centres during each year of the Plan. This will be concentrated in localities covered by the Accelerated Rural Development Programme and in thickly populated areas. By the end of 1971 Health Centres will have been established to render health and medical care services to a population of about 16 million people.

11. Maternal and Child Welfare: There are 5 Maternal and Child Welfare Centres in Thailand, the main functions of which are the training of midwives and the providing of maternal and child welfare services. During the Plan period, seven additional centres will be established and the number of midwives graduating from these Centres will rise from 300 in 1966 to 510 in 1971.

12. School Health: The supervision of the health of school children includes health services, advice on the improvement of school sanitation and the teaching of health education. There are at present 18 operational units. The Plan programme is to add 9 more similiar units and 3 dental - hygiene units to supervise the health of school children in rural areas.

13. Rural Nutrition: This project was initiated in 1961 by the establishment of a centre in Ubon Ratchathani which provides information on nutrition, including preventive and curative measures for cases of malnutrition. The services of the Centre will be extended into 7 more provinces covered by the Accelerated Rural Development Programme in order to control the diseases resulting from unbalanced diets such as goitre and beri-beri.

14. Vocational Health: A new project is proposed to make a study of the causes and effects of industrial disease, and to recommend preventive measures, including removal of refuse and wastage from industrial factories, for the health of labourers and their families. One centre was established during, the First Plan and these services will be extended to other provinces where industrial activities are concentrated.

Control and Prevention of Diseases

15. Malaria Eradication: Considering the low incidence of malaria in Thailand, the control and eradication programme has been redesignated since 1965

as a programme of complete eradication. It is proposed to continue spraying chemicals in certain areas, including border provinces, where malaria is still prevalent. Systematic case-finding and treatment will be made of infected persons in order to eliminate the breeding places of the disease. By the end of the Second Plan it is estimated that the population in areas free from malaria will be about 17.7 million, and those in slightly affected areas where the disease will not be a serious hazard will be about 14.2 million, thus leaving only small pockets of the country where malaria will still be endemic.

16. Tuberculosis: At present there are 4 T.B. Control Centres providing diagnostic and curative services. Eight mobile units survey and provide treatment for T.B. patients in Bangkok-Thon Buri, besides one unit in each region, and BCG vaccination is carried out by 6 mobile units. During the Second Plan period, it is proposed to establish 2 T.B. Control Units in each region to serve as branches of the Central T.B. Control Centre and to work closely with about 100 First-class or Second-class Health Centres. More mobile units will also be set up to serve people in the remote areas. Laboratory work required by the mobile units will be done at the local First-class Health Centres order to broaden the area coverage. In the field of thoracic surgery, it is proposed to extend the facilities at the Chest Clinic in Nontha-buri.

17. Leprosy: A pilot leprosy control project was started in Khon Kaen in 1955 with the assistance of WHO experts. Ambulatory treatment of leprous patients after a house to house survey has been widely extended. At present there are leprosy control units in operation in 31 provinces, 3 control centres, and 193 treatment units attached to Health Centres. The Government maintain 24 mobile units (14 in the Northeast, 5 in the North, and 5 in the East), and 2 leprosaria. It is proposed to extend the leprosy control work to 40 more provinces during the next five years by adding 30 more mobile units, especially in the South where the Government will start control work. It is estimated that about 11.5 million people will be covered by the survey.

18. Trachoma and Conjunctivitis: The control of these diseases is included in the school health project. The main control work is carried out in the Northeast where about 40 % of the population covered by the survey suffered from trachoma and conjunctivitis. At present 6 control units are

operating and 12 more units will be added under this Plan.

19. Elephantiasis: The Government started an elephantiasis control project in 1961 by undertaking case-findings and treatment of infected persons in the South where the disease is particularly prevalent. It is planned to establish four more control offices and 2 more mobile units.

20. Venereal Disease: The control of the disease has been undertaken by the Government for many years under the project of V.D. and Yaws Control. The project has 40 V.D. control units and there are 28 control units operated by agencies and organizations not included in the project. During the Plan period the V.D. control programme will be separated from the yaws control programme which has achieved its objective of final eradication. The improvement of 10 V.D. control units in the provinces will be accomplished, in addition to the establishment of 5 third-class V.D. control units each year.

21. Liver Flukes: The control of liver flukes has been integrated with the project for the control of contagious diseases since 1965. There is a control centre in Sakhon Nakhon, the functions of which are both preventive and curative. The centre provides information for local people concerning care to be taken in environmental sanitation and food consumption. For curative measures the centre works closely with the health centres in the areas concerned. It is proposed to separate liver flukes control from the former project and the scope of control will be extended to cover a larger area in the Northeast where the disease is prevalent.

22. Haemorrhagic fever: The control of this disease has also been included in the contagious disease control project, but haemorrhagic fever is becomming an increasingly important public health problem. It will, therefore, be made a separate project during the Second Plan period, and assistance will be sought from WHO and SEATO. To make preventive measures more effective it is planned to cooperate with the malaria control project to eradicate the "aedes aegypti" mosquitoes which are the important disease carriers.

Research

23. Medical research and analysis: Research will be intensified in the fields of virology, pharmacology, bacteriology, parasitology, and pathology;

indigenous medical plants; drug standardization; and poisonous substances. Technical control measures will be devised to assure safety in the use of radiology.

24. Family Planning Research: The research which has been initiated during the First Plan on a pilot basis will be extended to areas with particularly high birth rates and low incomes. This will include areas of the Northeast and the South. Research will include local receptivity toward family planning and the results will be useful in formulating future family planning policies.

25. The production of drugs: The Division of Medical Depot and the Government Pharmaceutical Laboratory of the Ministry of Public Health will be integrated into a Government Pharmaceutical Organization in order to consolidate the production of various kinds of drugs. Research and quality control measures will be undertaken to provide for the adaption of modern techniques and equipment.

Medical Care Service

26. Local Hospitals: There are 84 local hospitals in Thailand - 68 provincial and 16 district hospitals - with a total of 600 doctors, 1,566 nurses, and 10,000 hospital beds. The ratio of beds to population is 1 : 2,800. During the Plan period, improvements and increases are proposed in the facilities and personnel of these hospitals. The addition of 800 to 1,000 beds every year will reduce the ratio of beds to population from 1 : 2,800 in 1966 to 1 : 2,400 in 1971. The number of doctors will be increased from 600 to 825 and nurses from 1,566 to 2,816 during the Plan period.

27. Regional Hospitals: In the First Plan, the objective was to convert 3 provincial hospitals into regional hospitals for the North, Northeast and South. Owing to the shortage of funds and specialists the project could not be completed. It is, therefore, necessary to continue the project task in the Second Plan. It is also planned to develop 4 provincial hospitals into regional centres during the next five years and five provincial hospitals will be upgraded to the rank of regional hospitals.

28. Other Hospitals: There will be improvements and expansion of facilities at the three Bangkok-Thon Buri hospitals operated by the Department of Medical Services, the six Psychiatric Hospitals and the Children's Neurological

and Psychiatric Hospital, the four hospitals providing treatment for drug addicts, the Prasert (neuropsychiatric) Hospital, the Songkhla Neurological Hospital, and the Hospital for Mentally Retarded Children. In cooperation with the Faculty of Medicine of the University of Chiang Mai, a Neurological Research Centre and Clinic will be established in Chiang Mai as a branch of the Prasart Hospital.

29. Nurses' Training: The Women's Hospital in Bangkok will train 50 instructors for the Schools for Nurses and Midwives each year during the Plan period. The number of Schools for Nurses and Midwives will be increased from 5 to 10 and the annual number of graduates will rise from 290 to 640. During the Plan period, 4 Schools for Nurses Aids will be established in provincial hospitals, which together with 2 existing schools will increase the number of graduates per year from 200 to 360.

30. National Cancer Institute: The Institute, established in 1962, provides training for doctors in cancer diagnosis at initial states. It is proposed to separate the Institute from the Women's Hospital and to establish its own wards in 1967 with an admission capacity of 200 beds.

31. Mobile Medical Care Units: The purpose is to extend services to the people in remote areas living far from a Health Centre. The Department of Medical Services is now maintaining units attached to 4 provincial hospitals. The services of these units also include the diffusion of knowledge in health and hygiene among the villagers through the existing Health and Midwife Centres.

Outlook for the Future

32. The public health programme in the next Plan period will lay stress on rural health and sanitation development by bringing health services directly to the rural people and creating among them an awareness of the importance of environmental sanitation. The shortage of doctors and nurses is the most acute problem and it will be alleviated by means of proper incentives and measures to draw more medical personnel to serve in the rural areas. At present the ratio of doctors to population in the urban areas is 1 : 1,000 as compared to 1 : 20,000 in the rural areas. There is apparent need to persuade doctors graduating from the universities in Thailand to practise

for some time in the country before taking leave for further education abroad.

33. The progress of rural health development will depend on the successful implementation of the local health projects. Programmes to provide safe water for consumption in rural areas, to increase the number of Rural Health Centres and Mobile Units should receive special support in view of their significant contribution towards the economic and social development of the country.

34. Hospital services in Thailand are still not adequate, especially for the needs of destitute patients, and their extension and improvement are urgenty needed. In the field of medical science, Thailand is still lagging behind in research work due to shortage of funds, equipment, and facilities, although there are several doctors of high standing and reputation in the country. The solution of this problem requires immediate attention.

35. The rapid population growth will inevitably become a growing social and economic problem in the future. Although the Government has not initiated a family planning programme directly, it is necessary to continue study and research in the field of family planning so as to prepare for future action to control population growth if such a policy is deemed desirable by the Government.

APPENDIX A

A 1 Summary of Second Plan Development Expenditures by Financing Source - Public Health Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget Appropriations	233.36	339.47	373.72	416.55	438.06	1,801.16
Foreign Loans	-	-	-	-	-	-
Foreign Grants	140.00	140.00	150.00	160.00	165.00	755.00
State Enterprises' Own Resources	5.50	4.28	2.00	2.00	2.00	15.78
Total	378.86	483.75	525.72	578.55	605.06	2,571.94

A 2 Second Plan Development Projects Financed by Budget Appropriations - Public Health Sector

(millions of baht)

Government agency / Project	1967	1968	1969	1970	1971	Total
Office of Under Secretary, Ministry of Public Health	12.70	16.51	16.87	17.50	12.21	75.79
1. Malaria Eradication	6.38	6.65	6.90	7.15	7.40	34.48
2. Elephantiasis Control	0.38	1.34	2.25	1.66	1.62	7.25
3. National Cancer Institute	5.94	8.52	7.72	8.69	3.19	34.06
Department of Medical Services	100.71	145.82	155.38	172.64	180.01	754.56
1. Provincial Hospitals	63.83	76.56	87.30	100.04	115.77	443.50
2. Regional Hospitals	-	7.54	8.89	8.71	3.19	28.33
3. Lertsinn Hospital	1.50	12.76	3.40	3.24	1.33	22.23
4. Women's Hospital	7.15	7.09	7.76	8.49	7.62	38.11
5. Nurse Training	8.20	16.92	16.15	17.23	18.03	76.53
6. The Priests' Hospital	0.25	0.56	1.21	1.76	0.56	4.34
7. Neuro - psychiatric Hospitals and Institute	16.81	19.22	23.42	27.55	29.91	116.91
8. Psychiatric Treatment	-	1.07	1.28	0.82	0.83	4.00
9. Research and Treatment for Drug Addiction	2.97	3.54	5.22	4.22	2.55	18.50
10. Mobile Units	-	0.56	0.75	0.58	0.22	2.11

(millions of baht)

Government agency / Project	1967	1968	1969	1970	1971	Total
Department of Health	114.56	167.88	187.47	210.41	237.31	917.63
1. Health Centres	38.92	48.78	56.00	65.00	76.00	284.70
2. Maternal and Child Welfare	19.88	28.80	31.55	34.57	37.90	152.70
3. Tuberculosis	7.57	12.52	15.80	18.39	22.84	77.12
4. Thoracic Surgery	5.12	11.00	12.80	14.80	16.30	60.02
5. Rural Nutrition	0.98	2.31	2.31	2.61	2.81	11.02
6. Leprosy	12.72	17.22	18.88	20.71	22.72	92.25
7. Trachoma and Conjunctivitis	0.52	3.86	5.00	6.17	7.98	23.53
8. Rural Health and Sanitation	6.44	8.03	8.80	9.65	10.58	43.50
9. Venereal Disease	3.85	9.75	10.99	12.12	13.26	49.97
10. Village Water Supply	17.51	17.50	17.50	17.50	17.50	87.51
11. Haemorrhagic Fever	0.81	1.28	1.37	1.58	1.62	6.66
12. Liver Flukes	0.24	1.85	1.85	2.70	2.70	9.34
13. Family Planning Research	-	1.58	2.14	2.46	2.82	9.00
14. Vocational Health	-	3.40	2.48	2.15	2.28	10.31

(millions of baht)

Government agency / Project	1967	1968	1969	1970	1971	Total
Department of Medical Sciences	5.39	6.88	7.54	8.04	8.53	36.38
1. Research	5.39	6.03	6.47	7.01	7.48	32.38
2. Danger from Radiology	-	0.85	1.07	1.03	1.05	4.00
Pharmaceutical Factory	-	2.38	6.46	7.96	-	16.80
1. Extension of the Government Pharmaceutical Organization	-	2.38	6.46	7.96	-	16.80
Grand Total	233.36	339.47	373.72	416.55	438.06	1,801.16

A 3 Second Plan Development Projects Financed by Foreign Grants - Public Health Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
Projects to be Continued from the First Plan	101.60	71.50	26.50	15.40	14.30	229.30
1. Malaria Eradication	44.30	23.20	23.60	12.80	12.80	116.70
2. Drugs and Medical Appliances Control	0.90	1.50	1.50	1.50	1.50	6.90
3. Village Water Supply	27.10	27.30	-	-	-	54.40
4. Rural Health and Sanitation	17.60	15.10	-	-	-	32.70
5. Mobile Units	10.00	2.80	-	-	-	12.80
6. National Public Health Laboratory	1.70	1.60	1.40	1.10	-	5.80
New Projects and Extensions 1/	38.40	68.50	123.50	144.60	150.70	525.70
Grand Total	140.00	140.00	150.00	160.00	165.00	755.00

1/ The projects consist of the following : Village Water Supply, Rural Health and Sanitation, National Cancer Institute, Mobile Health Units, Regional Hospitals, Rural Nutrition, Maternal and Child Welfare, Thoracic Surgery, Vocational Health, Neuro-psychiatric Hospitals and Institute, Tuberculosis Research.

A 4 Second Plan Development Projects Financed by State Enterprises' Own Resources - Public Health Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
1. Extension of the Government Pharmaceutical Organization	5.50	4.28	2.00	2.00	2.00	15.78
Total	5.50	4.28	2.00	2.00	2.00	15.78

CHAPTER XVI

EDUCATION

1. One of the most important factors in the successful attainment of Thailand's development objectives is the availability of trained human resources at every level. This can only be achieved through the education and training of Thai citizens, in a manner which is consistent with the country's economic requirements and social structure. Considering overall manpower requirements, it is evident that there will be a continuing need to develop trained manpower, particularly at the middle-level, beyond the period of the Plan. An objective of equal importance is to provide properly trained citizens capable of participating in a democratic society. While providing necessary skills and technical proficiencies, planning must also take into consideration the entire social and cultural environment of the educational system.

Progress Under the First Plan

2. During the First Plan, educational development in Thailand made steady progress, both in qualitative and quantitative aspects. Table 1 presents summary data on the number of schools and teachers at different levels of education.

3. In the context of the educational progress achieved so far, three pertinent points deserve special consideration:

(i) The majority of Thailand's school-age population does not have an opportunity to continue education after completion of compulsory education; enrollment at the lower secondary level is only 6% of the total primary school enrollment. This factor can have an adverse effect on the future availability of professional, technical and middle-level manpower which the country requires for economic development.

(ii) Private schools play a very vital role in education, particularly from grade 5 to the upper secondary level.

Table 1

Number of Schools and Teachers by Levels and Types of Education, 1965

Types and Levels	Number of Schools	Number of Teachers
Grade 1-7		
Public	29,209	168,475
Municipal	455	6,051
Grade 8-13		
Public Academic Stream Grade 8-12	588	8,093
Public Vocational Stream Grade 8-13	183	4,460
Private Schools		
Grade 1-12	1,049	32,708
Lower and Upper Vocational Secondary	17	340
Technical Institutes		
Public	7	727
Teacher Training		
Certificate	27	1,459
Degree	3	431
University	7	3,056[1]

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[1] The total number of University teachers consists of 2,047 full-time and 1,009 part-time teachers.

(iii) At the university level the shortage of teachers is evidenced by the fact that nearly 30% of the total teaching force is made up of part-time instructors. This shortage of teachers has been an important bottleneck to producing more and better qualified personnel in different professional fields, particularly the sciences and engineering. Nevertheless, the proportion of students graduating from secondary schools who were able to gain entrance into the universities rose from 18% in 1963 to 58% in 1965.

Educational Policy

4. The overall policy of educational development in the Plan period will be as follows:

(i) To provide education which is consistent with the economic and social development objectives of the country.

(ii) To make provisions for the expansion of education consistent with the government's social obligations and responsibilities, including educational opportunities for all children of school-attending ages.

(iii) To achieve a more equitable balance in the country by accelerating the qualitative improvement of regional or rural education.

(iv) To effect qualitative improvements, in course preparation and curriculum development, text books, school buildings and qualification of teachers, and

(v) To promote the development of private education, particularly the improvement of qualitative standards.

Educational Targets

5. There are presently a total of 5,293,245 students enrolled in schools. It is anticipated that by 1971 the total will rise to 6,350,500 students, an increase of 20%; see Table 2. The most rapid increases will take place at the secondary academic, technical, and teacher training levels. The enrollment increases at the university and the secondary level will be geared primarily towards satisfying the country's manpower needs.

6. A critical target for the Plan is the training of new teachers in relation to requirements. Excluding approximately 1,900 new physical education teachers, about 49,770 new teachers are to be trained during the Plan period. Their qualifications will range from the Certificate of Education level to the Bachelor's degree. In numerical terms, 31,950 students will receive a regular certificate; 9,450 the higher certificate; 1,320 the certificate for vocational secondary education; and 7,050 the Bachelor's degree. It is anticipated that approximately 25% of the graduates earning the Certificate of Education will continue their education. Under this assumption, the supply of new teachers during the Plan period would be reduced to 39,000, composed of 32,000 certificate holders and 7,000 degree holders.

7. The demand for teachers during the Plan period is estimated to be 49,000 persons, consisting of 39,000 certificate holders and 10,000 teachers holding undergraduate degrees or higher qualification. The demand for new teachers takes into account the student enrollment increase and the teacher-student ratio that is considered appropriate. These two factors lead to the estimated requirement of 38,000 new teachers; see Table 3. There is also the need to replace some of the existing stock of teachers due to deaths, retirement, and other reasons during the five year period. This replacement rate is estimated to be 5% of the number of current teachers and results in another 11,000 new teachers or a total of 49,000 required during the Plan.

Table 2

Second Plan Projected Enrollment at Various Educational Levels

Educational Level	1966	1971	Absolute Increase	Percentage Increase
Kindergarten	75,376	113,250	37,880	50.2 %
Primary	4,768,000	5,504,000	736,000	15.4
Lower Primary	4,231,000	4,753,000	522,000	12.3
Upper Primary	537,000	751,000	214,000	39.8
Secondary-Academic Stream	345,502	575,700	228,200	66.0
Lower Secondary	300,400	495,900	195,500	65.0
Upper Secondary	45,102	79,800	34,700	76.9
Secondary-Vocational Stream	42,600	63,000	20,400	47.8
Lower Secondary	5,600	7,100	1,500	26.7
Upper Secondary	37,000	55,900	18,900	51.0
Teacher-Training	19,776	31,700	11,970	60.5
Certificate level	14,498	22,200	7,700	53.1
Higher Certificate level	3,378	5,200	1,820	53.9
Degree level	1,900	4,300	2,400	126.3
Technical Institute	8,460	19,090	10,630	125.6
University (Bachelor's degrees)	33,531	43,830	10,300	30.7
Humanities	1,615	4,150	2,540	157.2
Education	1,075	2,410	1,340	124.6
Fine Arts	751	1,170	420	55.9
Social Sciences (1)	20,477	19,700	-780	-3.8
Natural Sciences	2,027	3,480	1,450	71.5
Engineering	1,961	3,640	1,680	87.6
Medical Sciences	3,603	4,770	2,490	32.4
Agriculture	2,022	4,510	2,490	123.1
Total	5,293,245	6,350,570	1,057,325	20.0 %

(1) Approximately 7,000 Thammasat University students are expected to lose their student eligibility during the Plan period.

Table 3

Teacher Requirements by Educational Level during the Second Plan Period

Educational Level	Student Increase between 1967 - 1971	Teacher Student Ratio Deemed Appropriate	New Teachers Required
Kindergarten	37,800	1 : 30	1,260
Primary			
Grade 1-4	522,000	1 : 35	14,914
Grade 5-7	214,000	1 : 25	8,560
Secondary-Academic Stream			
Grade 8-12	228,200	1 : 25	9,208
Secondary-Vocational Stream			
Grade 8-13	20,400	1 : 15	1,360
Teacher Training	11,970	1 : 10	1,190
Technical Institute	10,630	1 : 10	1,063
University	10,300	1 : 10	1,030
Total	1,055,300	-	38,585
Additional number of teachers required for replacement of present numbers due to death, retirement or other reasons.			11,000
Grand Total			49,585

8. A comparison of the estimates of demand (49,000 teachers) and supply (39,000 teachers) indicates a shortage of about 10,000 teachers, or roughly 7,000 certificate holders and 3,000 holders of the Bachelor's degree or higher. Part of these shortages can be met through such programmes as the Accelerated Teacher Training Programme of the Teacher Training Department, through utilization of university graduates in various fields other than teacher training, and students returning from education abroad.

DEVELOPMENT PROGRAMMES

9. Before presenting the development projects in the Education Sector, the general sector programmes will be described.

10. Improvements will be made at all levels of education in order to achieve economy and maximum utility of operation. In this connection modern techniques of educational administration will be encouraged.

11. Provision of educational opportunity for everyone at the compulsory school ages is a vital social obligation. Provision will therefore be made for an adequate number of school buildings and equipment as well as teachers to take care of children requiring education. This is a problem of great magnitude, particularly when the number of school-age children continues to increase from year to year. Those schools which are located in especially crowded municipal districts will receive special attention. In some rural areas where attendance is a problem, it will become necessary to devise a more effective system of supervision. There will also be an expansion of compulsory education at the upper primary level.

12. The secondary educational system will be oriented towards satisfying occupational requirements. It is necessary to prepare youths in the secondary schools to become useful citizens. Concentrated efforts will therefore be made to prepare the necessary

supply of qualified middle-level manpower. Efforts will also be made to establish more comprehensive schools, and to improve vocational secondary education with practical training and higher teacher qualifications.

13. In teacher training, qualitative and quantitative improvements will be made by taking into consideration shortages in different teaching levels and in different academic fields.

14. Appropriate improvements and expansion will also be made at the university level. In such fields as engineering, agriculture, medicine, and natural sciences, concentrated efforts will be made to improve education through various means, including the encouragement of research. Attempts will also be made to provide more university education throughout the country. This will be achieved through establishing new universities in different regions and expanding existing universities. To be in harmony with manpower requirements, it is expected that the number of social science students will be increased at a slower rate than those in the natural sciences. This should provide better teaching and the opportunity to upgrade the quality of students in some of the social science faculties.

15. Adult education will be provided as a means for continuing compulsory education. Adult education is necessary because of the relatively short period of compulsory education and the relatively young ages of those who have completed compulsory education.

16. Problems of private schools, particularly in the area of quality improvement, will receive attention. Private schools have a very important set of social obligations. To fulfil these obligations, the government will provide assistance in various fields. These include financial grants, enforcement of standards, educational supervision, hiring of qualified teachers, and in-service training of teachers.

17. Since various agencies of the Government are entrusted with the responsibility for providing education, co-ordinated efforts will be made to develop education in consonance with the overall policy. For example, the responsibility for providing primary education is at present jointly shared by the municipalities and the Ministry of Education. Such responsibility will eventually be transferred to the local administrative organizations. The Ministry of Education is responsible for secondary education, whereas at the university level the responsibility becomes that of the Office of Prime Minister. Under this complex administrative structure, co-ordination by means of systematic educational planning is imperative.

18. Coordination will also be established with the local authorities so that they can have a fuller share of participation. The provision of education is already a heavy burden of Government responsibility. Any form of assistance that the local authorities can render will therefore be welcome. This is particularly true of primary education where the Central Government and the local authorities must jointly participate to discharge their social obligations. Such joint participation becomes necessary in matters of educational budgeting as local tax contributions, municipal earnings, and contribution funds for public school buildings.

19. Thai national customs and traditions, morality, art, and religion represent important national heritages which will be preserved and promoted through education.

Development Projects

20. The total development programme for education is 6,612 million baht, consisting of 5,500 million from the national budget, 287 million from foreign loans, 290 million from domestic loans and 535 million from foreign grants; see Appendix A. The greater emphasis upon educational development is reflected in the increase of development expenditures on education from 7.4% of total expenditures under

the First Plan to 11.4% of a much higher level of expenditures under this Plan. There are 20 new development projects and 28 continuing projects in the Educational Development Plan.

Kindergarten and Lower Primary Education

21. Provision of public kindergarten schools in every province is a major objective. The teaching of small children will concentrate on providing proper oral communication in order to facilitate teaching at the first grade level. At present there are 13 provinces which do not have any kindergarten schools at all. Ten new schools are expected to be opened during the Plan period.

22. Since primary education is compulsory, expansion must take place in relation to population increases. Quality considerations are very important as dropouts and other wastages are prevalent. This is particularly true of first grade students, a large number of whom fail their examinations. During the Plan period, 522,000 more students will be enrolled thus requiring new schools and facilities and about 15,000 new teachers.

Appropriate measures of improvement will be undertaken, including a more effective system of supervision. Provisions for the lending of text books and a system concerning grants of writing materials will also be initiated.

Upper Primary Education

23. Efforts will be concentrated on the extension of compulsory education from four to seven years, as well as on finding a satisfactory means of preparing students to go on to secondary education. The enforcement of compulsory education already covers 500 districts and during the Plan period enforcement will be expanded to another 200 districts. At present there are 1,771 upper primary schools and 500 more will be established.

Secondary Education(Academic Stream)

24. The underlying problems appear to be those connected with developing students' vocational skills and providing basic skills for students who are unable to gain entrance into the universities. To deal with these problems, different types of comprehensive schools will be established. The increase of total enrollment to 575,700 students by 1971 will yield an enrollment ratio of 14% of the total number of children at the corresponding school ages, as compared with 9% at present.

25. This substantial increase in the number of students will be handled by the provision of more public schools, the enlargement of classes, and the following three projects:

(i) The Comprehensive Schools, Grades 8-12: Improvements will be made in nineteen existing schools, and one new school will be established making a total enrollment of 24,000 students in Comprehensive Schools. Students in these schools can choose any one of three streams: academic, pre-vocational, or vocational. A proper guidance system will be instituted to assist the students in making their choice.

(ii) Comprehensive Schools Offering Courses in Agriculture: In addition to the present total of 14 schools, another 50 public schools located primarily in the district headquarters will undergo improvements. An enrollment total of 18,000 students is expected by 1971. These schools will concentrate on practical courses in agriculture.

(iii) Project for Improving Rural Secondary Schools: With the assistance of UNICEF, this project will concentrate on providing adequate work-shops, equipment, and training courses in industrial arts. During the Plan period the number of such schools will increase from 58 to 90 with a total enrollment of 42,900 students.

Secondary Education (Vocational Stream)

26. Although the country needs manpower with vocational education, enrollments in vocational schools have declined in recent years. Projects have been designed to attract an additional 20,400 students to the vocational school during the Plan period. By 1971 it is anticipated that there will be a total of 46,900 students enrolled in the public schools, of whom, 24,400 will be in engineering trades and 7,500 each in the fields of agriculture, commerce, or home economics. The following projects will be implemented:

(i) The World Bank Loan Project to Improve Vocational Education: This project is intended to expand and improve various industrial trade and agricultural vocational schools. The annual enrollment in these schools is expected to rise to 11,900 students.

(ii) Project to Improve Trade Schools for Girls: The 8 schools under the UNICEF Project can enroll 2,800 students each year, and the output is approximately 2,700 students annually.

(iii) Project to Improve Agricultural Schools: The 12 schools that will be improved under this project have the capacity to accept about 2,000 students each year, and the annual output total is approximately 3,800 students.

(iv) Project to Improve Commercial Schools: The curriculum at two Commercial Schools will be extended for an additional two years in order to upgrade the calibre of the graduates and one new Commercial School will be established.

27. Vocational Teacher Training: A Vocational Teachers' College will be established to incorporate all the work of vocational teacher training into one school. This institution, the Chao Khun Taharn Vocational Teachers' College, will train vocational teachers at the diploma level in different fields, such as engineering trades, agriculture, and commerce. The total enrollment capacity will be 650 students with an annual output of 200 students.

Technical Institutes

28. At present there are 6 technical institutes in the country. With the addition of a new institute at Tak, an additional 10,630 students can be accepted. It is anticipated that by 1971 the total enrollment at this educational level will be as much as 19,090 students. School buildings and equipment will be improved, and an additional supply of teaching personnel will be provided.

University Education

29. In general, Thailand needs university trained personnel in every sector of the economy. Shortages are particularly felt, however, in such fields as engineering, agriculture, natural and medical sciences. To deal with this problem, appropriate improvement and expansion will be undertaken. Not only will new facilities be added, but attempts will also be made to enlarge the existing capacity. In qualitative terms, such matters as teaching personnel, educational equipment, teaching materials, and educational research will be improved. By 1971, the total University enrollment should be approximately 43,830 students.

30. The Universities of Chiang Mai and Khon Kaen will establish new faculties in such fields as engineering, science and education. The improvement projects being planned for Kasetsart University include plans to double the enrollment capacity as well as to establish new faculties in the fields of arts, engineering, and science. At Chulalongkorn University the Faculty of Engineering will be improved through foreign assistance. In addition, a new Faculty of Dentistry, Faculty of Pharmacy and the Rama Thibordi Faculty of Medicine will be established as part of the University of Medical Sciences.

31. Several developments will take place in relation to the establishment of new institutions or relocation of existing institutions. The new University of the South will establish a Faculty of Engineering at Pattani and a Faculty of Medicine at Songkhla. The recently established National Institute for Development Administration will offer graduate level courses in public administration, business administration, development economics, and applied statistics. The Silpakorn University will be moved to Nakhon Pathom where the present faculties of Arts, Natural Sciences, and Music will be expanded.

32. In the realm of international educational cooperation, there are two significant developments. One is the movement to achieve cooperation in developing the education systems of the Southeast Asian countries. Attempts will be made to raise the standards of education in such fields as agriculture, tropical medicine, and engineering. The Faculty of Tropical Medicine will be developed and the SEATO Graduate School of Engineering will be renamed the Asian Institute of Technology and will operate as an independent entity. Another development is a series of cooperative arrangements between American and Thai Universities with the aim of producing qualified university instructors for Thailand.

33. Table 4 presents the targets for the increase in enrollment and the total number of graduates during the Plan period for each University Faculty.

Table 4

Second Plan Targets for University Education by Faculty

	Increase in Enrollment 1966-1971	Total Number of Graduates during the Plan Period
Chulalongkorn University		
Faculty of Commerce and Accountancy	780	1,490
Faculty of Education	680	1,750
Faculty of Political Science	1,090	1,135
Faculty of Science	450	1,250
Faculty of Engineering	510	1,400
Faculty of Architecture	140	390
Faculty of Arts	700	830
Faculty of Graduate Studies	620	830
Department of Mass Communication	190	210
SEATO Graduate School of Engineering (1)		
All Departments	200	750
Kasetsart University		
Faculty of Agriculture	970	1,100
Faculty of Economics & Business Administration	370	436
Faculty of Forestry (2)	480	440
Faculty of Fisheries	270	150
Faculty of Veterinary Science	112	150
Faculty of Science and Arts (3)	600	50
Faculty of Engineering (3)	80	
Faculty of Graduate Studies	300	
Thammasat University		
Faculty of Political Science	600	600
Faculty of Economics	1,250	1,250
Faculty of Law	800	4,200
Faculty of Social Administration	340	1,160
Faculty of Commerce and Accountancy	239	2,090
Faculty of Liberal Arts	125	600
Silpakorn University		
Faculty of Painting and Sculpture (4)	40	90
Faculty of Decorative Arts	90	135
Faculty of Thai Architecture	50	160
Faculty of Archaeology	10	
Faculty of Arts (3)	580	
Faculty of Science (3)	250	
Faculty of Music (3), (4)	30	
University of Chiang Mai		
Faculty of Science		550
Faculty of Humanities	609	531
Faculty of Social Sciences	627	464
Faculty of Agriculture	570	155
Faculty of Education (3)	75	475
Faculty of Engineering (3)	90	

	Increase in Enrollment 1966-1971	Total Number of Graduates during the Plan Period
University of the Northeast, Khon Kaen		
Faculty of Science and Arts (3)	180	
Faculty of Engineering	470	310
Faculty of Agriculture	445	200
Faculty of Education (3)	180	
The National Institute of Development Administration		
Faculty of Public Administration	100	250
Faculty of Business Administration (3)	350	150
Faculty of Economic Development (3)	120	
Faculty of Applied Statistics	240	360
University of the South		
Faculty of Engineering (3)	240	45
Faculty of Medical Science (3)	100	
The University of Medical Sciences		
Faculty of Medicine - Siriraj Hospital (2)	Na	1,700
Faculty of Medicine - Chulalongkorn Hospital	68	400
Faculty of Dentistry	100	300
Faculty of Pharmacy (2)	147	650
Faculty of Public Health (2)	335	1,325
Faculty of Medical Technology (4)	140	585
Faculty of Tropical Medicine (3)	12	60
Phyathai Faculty of Medicine (3)	250	30
Faculty of Graduate Studies	25	
Faculty of Medical Sciences	160	2,545

(1) To be renamed the Asian Institute of Technology
(2) Undergraduate and graduates
(3) New faculty
(4) Diploma level studies only

Other Education Projects

34. Private Schools: The Government will provide financial assistance to 400 private schools, thus making a total of 2,121 schools receiving public financial assistance. Appropriate measures will also be undertaken to improve the overall standards of private schools.

35. Teacher Training: Whatever improvements are made in teacher education must be consistent with improvements made at other levels of education. During the Plan period, the following enrollment increases are expected: 7,702 at the Certificate level; 1,882 at the Higher Certificate level; and 2,440 at the Degree level. By 1971 there will be 22,200 students trained at the Certificate level; 5,200 trained at the Higher Certificate level; and 4,300 trained to become Degree-holding instructors. The target is to produce 31,950 with a lower Certificate in teaching, 9,150 with Higher Certificates, 1,320 with Certificate for teaching vocational secondary education; and 7,050 Degree-holding instructors. If necessary, accelerated training programs can be instituted to meet the need for teachers. Another major project in the Teacher Training Department is to provide approximately 200 trained teachers for the comprehensive schools.

36. Adult Education: Efforts devoted to providing general as well as vocational education for adults are expected to increase adult literacy by 300,000 people. Twenty five Educational Training Centres will be established and 9 mobile vocational training units will be provided to augment the 2 existing units.

37. Five new Welfare Schools will be established in order to provide schooling for students who are without proper means of parental support. In addition, the schools which have been established especially for hill tribe people will be improved.

38. A National Institute for Educational Reform and a Test Bureau will be established with foreign assistance. The scope of operations will cover educational research, educational psychology, and the designing of appropriate tests. The use of educational radio will be expanded and experiments in educational television will be initiated.

39. It is anticipated that during the Plan period various problems requiring careful consideration will arise. One of these problemsconcerns the changing trends in secondary education. To meet the needs of the country, secondary education must achieve a more systematic improvement and balanced growth in its academic and vocational streams. Other problems may arise in connection with educational quality considerations. To improve education at all levels, various measures will become necessary in such relevant areas as inspection and supervision, preparation of qualified teachers, administration, methods of teaching, development of curricula, and the role of private schools.

40. With respect to private secondary schools, there are many questions to which satisfactory answers must be provided. One example is the relationship between investment and educational fees levied by private schools as compared to financial assistance provided by the government. In addition, matters relating to administration, inspection and supervision of teachers will also have to be carefully considered.

41. A serious obstacle underlying expansion at the university level is the shortage of qualified full-time instructors. This problem has become so acute that the universities must resort to the use of part-time instructors for nearly 30% of their teaching force. This problem is especially severe in certain faculties such as medicine and engineering.

42. One aspect of planning that requires careful consideration in Thailand is the rapid growth of population. Presently the size of the population is approximately 33.2 million persons; by 1981 it is anticipated to be over 50 million persons. This will nearly double the Government's responsibility for providing education. Moreover, there will be increasingly urgent needs to educate manpower to meet different requirements arising from the rapid growth of the country's economy. It is estimated, therefore, that in 1981 there will be approximately 1,325,000 students at the secondary level of education, 900,000 more students than are now enrolled.

43. The development of secondary education has a strong impact upon the expansion of upper primary education as well as on increased enrollment at university levels. These effects have been examined in the Thailand Secondary Education Study. The study points out that appropriate actions must be initiated now in order to cope with the substantial anticipated increase in enrollment at the secondary level.

44. A further problem regarding educational planning is the necessity to provide land for school buildings and other purposes. Land will become increasingly more difficult to acquire which will result in higher prices, a problem which must receive early attention.

45. In order to achieve effective educational planning and organization, co-ordination and cooperation among various interested Government agencies becomes imperative.

APPENDIX A

A1 Summary of Second Plan Development Expenditures by Financing Source-Education Sector

(millions of baht)

Sources of Finance	1967	1968	1969	1970	1971	Total
National Budget	893.83	1,080.30	1,103.50	1,169.50	1,253.30	5,500.43
Foreign Loans[1/]	36.00	157.00	134.00	119.00	131.00	577.00
Foreign Grants	90.00	100.00	110.00	115.00	120.00	535.00
Grand Total	1,019.83	1,337.30	1,347.50	1,403.50	1,504.30	6,612.43

[1/] Includes foreign exchange of 290 million baht from the Bank of Thailand.

A2 Second Plan Development Projects Financed by Budget Appropriations-Education Sector

(millions of baht)

Government Agency / Project	1967	1968	1969	1970	1971	Total
Ministry of Education	624.83	713.30	779.50	869.50	960.30	3,947.43
Elementary and Adult Education Department	315.47	355.50	388.50	427.50	464.00	1,950.97
1. Expansion and Improvement of Primary Education	4.00	4.00	4.00	4.00	4.00	20.00
2. Compulsory Education[1/]	210.00	240.00	266.00	296.00	321.00	1,333.00
3. Upper Primary Education	95.00	104.00	109.00	114.00	124.00	546.00
4. Educational Supervision Projects	2.50	2.50	2.50	2.50	3.00	13.00
5. Expansion and Improvement of Welfare Schools	3.30	3.00	3.00	3.00	2.00	14.30
6. Expansion of Adult Education Project	.67	2.00	4.00	8.00	10.00	24.67
Secondary Education Department	112.20	119.80	139.00	163.00	207.00	741.00
1. Secondary and Pre-University Education	81.20	93.80	106.00	124.00	162.00	567.00
2. Comprehensive Schools	31.00	26.00	33.00	39.00	45.00	174.00
Department of Vocational Education	142.43	162.00	162.00	185.00	192.00	843.43
1. Expansion and Improvement of Trade Schools	16.00	19.00	21.00	49.00	62.00	167.00

Government Agency / Project	1967	1968	1969	1970	1971	Total
2. Expansion and Improvement of Commercial and Industrial Schools	13.00	14.00	15.00	19.00	20.00	81.00
3. Expansion and Improvement of Technical Institutes	22.00	39.00	55.00	65.00	70.00	251.00
4. Expansion and Improvement of Agricultural Schools (outside the scope of the IBRD Loan Project)	8.00	8.00	8.00	8.00	8.00	40.00
5. IBRD Loan Project	83.00	69.00	44.00	25.00	19.00	240.00
6. Establishment of Chao Khun Taharn Vocational Teachers' College	-	10.00	15.00	15.00	10.00	50.00
7. Expansion and Improvement of Non-grade Vocational Schools and of Mobile Vocational Training Units	.43	3.0	4.0	4.0	3.0	14.43
Teacher Training Department	52.73	74.00	88.00	92.00	94.00	401.03
1. Expansion and Improvement of Teacher Training at Certificate Levels	42.00	50.00	55.00	58.00	62.00	267.00
2. Expansion and Improvement of Teacher Training at Degree Levels	8.00	16.00	22.00	23.00	25.00	94.00
3. Teacher Training for Comprehensive Schools	2.00	4.00	5.00	5.00	4.00	20.00
4. National Institute for Educational Reform and Adaptation	.73	2.00	3.00	3.00	1.30	10.03

Government Agency / Project	1967	1968	1969	1970	1971	Total
5. Test Bureau	-	2.00	3.00	3.00	2.00	10.00
Office of the Under-Secretary	2.00	2.00	2.00	2.00	3.00	11.00
1. Expansion and Improvement of Educational Radio and Television Projects	2.00	2.00	2.00	2.00	3.00	11.00
Universities	269.00	367.00	324.00	300.00	293.00	1,553.00
1. Expansion and Improvement of Chulalongkorn University	29.00	35.00	36.00	42.00	43.00	185.00
2. Expansion and Improvement of Kasetsart University	23.00	37.00	43.00	45.00	52.00	200.00
3. Expansion and Improvement of Thammasat University	9.00	25.00	20.00	8.00	7.00	69.00
4. Expansion and Improvement of The University of Medical Sciences	80.00	83.00	76.00	66.00	65.00	370.00
5. Expansion and Improvement of Silpakorn University	9.00	15.00	17.00	20.00	15.00	76.00
6. Expansion and Improvement of Chiang Mai University	52.00	95.00	52.00	54.00	43.00	296.00
7. Expansion and Improvement of Khon Kaen University	28.00	30.00	45.00	35.00	33.00	171.00
8. Establishment of the National Institute of Development Administration	15.00	27.00	15.00	5.00	5.00	67.00
9. Establishment of the University of the South	24.00	20.00	20.00	25.00	30.00	119.00
Grand Total	893.83	1,080.30	1,103.50	1,169.50	1,253.30	5,500.43

1/ Part of the appropriation will be allocated to the Ministry of Interior.

A3 Second Plan Development Projects Financed by Foreign Loans - Education Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
1. Comprehensive Schools[1]	4.00	4.00	4.00	4.00	4.00	20.00
2. Vocational Education[1]	20.00	25.00	25.00	25.00	25.00	120.00
3. Faculty of Engineering, Chulalongkorn University	-	10.00	10.00	10.00	17.00	47.00
4. Kasetsart University	-	20.00	25.00	25.00	30.00	100.00
5. Vocational Education[2]	12.00	78.00	45.00	25.00	20.00	180.00
6. Comprehensive Schools[2]	-	20.00	25.00	30.00	35.00	110.00
Total	36.00	157.00	134.00	119.00	131.00	577.00

[1] Continued from the First Plan

[2] Includes foreign exchange from the Bank of Thailand.

A4 Second Plan Development Projects Financed by Foreign Grants - Education Sector

(millions of baht)

Project	1967	1968	1969	1970	1971	Total
A. Continuing Projects	67.80	60.20	18.10	5.50	3.00	154.60
1. United States	49.60	45.90	12.20	5.50	3.00	116.20
Vocational Education	5.50	8.30	4.20	4.20	2.10	24.30
Rural Education	19.10	17.60	6.80	-	-	43.50
Faculty of Medicine, Chiang Mai University	18.20	18.20	-	-	-	36.40
Graduate School of Engineering	5.50	-	-	-	-	5.50
Faculty of Commerce	1.30	1.80	1.20	1.30	.90	6.50
2. United Nations Special Fund	.60	-	-	-	-	.60
Thon Buri Technical Institute	.60	-	-	-	-	.60
3. Colombo Plan	10.30	10.30	4.00	-	-	24.60
Khon Kaen University	6.30	6.30	-	-	-	12.60
Engineering Faculty, Chulalongkorn University	4.00	4.00	4.00	-	-	12.00

Project	1967	1968	1969	1970	1971	Total
4. Other Sources	7.30	4.00	1.90	-	-	13.20
Thai-German Technical Institute	2.00	.70	.70	-	-	3.40
Khon Kaen Technical School	3.20	2.30	.50	-	-	6.00
Agricultural Engineering Centre, Kasetsart University	1.30	1.00	.70	-	-	3.00
Engineering Laboratory, Chulalongkorn University	.80	-	-	-	-	.80
B. New or Expanded Projects[1]	22.20	39.80	91.90	109.50	117.00	380.40
Total	90.00	100.00	110.00	115.00	120.00	535.00

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[1] Project details are not available.